Shomu CORPORATION

3940-A Ruffin Road
San Diego CA 92123

Phone(619)278-8800 FAX(619)278-8809

IMPORTANT SAFEGUARDS

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

1. Read Instructions — All the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions — The safety and operating instructions should be retained for future reference.

3. Heed Warnings — All warnings on the appliance and in the operating instructions should be adhered to.

4. Follow Instructions — All operating and use instructions should be followed.

5. Cleaning — Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. Attachments — Do not use attachments not recommended by the video product manufacturer as they may cause hazards.

7. Water and Moisture — Do not use this video product near water — for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.

8. Accessories — Do not place this video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the appliance should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9. Ventilation — Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the video product and to protect it from overheating, and these openings must not be blocked by placing the video product on a bed, sofa, rug, or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

10. Power Sources — This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.

11. Polarization — This video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

12. Power-Cord Protection — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where the exit from the appliance.

13. Outdoor Antenna Grounding — If an outside antenna or cable system is connected to the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.

FIGURE 1
EXAMPLE OF ANTENNA GROUNDING ACCORDING TO NATIONAL ELECTRICAL CODE INSTRUCTIONS CONTAINED IN ARTICLE 810 "RADIO AND TELEVISION EQUIPMENT"
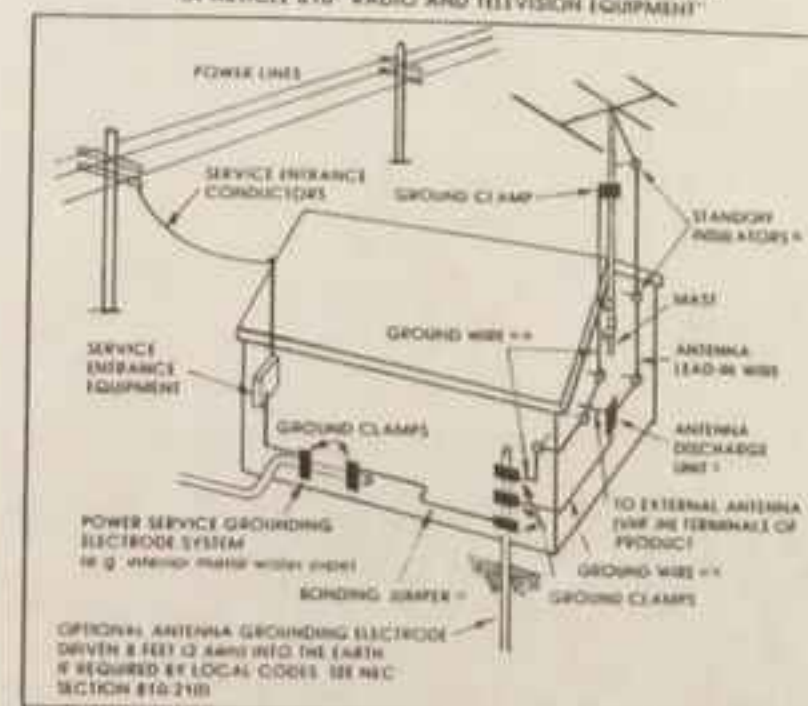
a.) Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel or bronze wire, or larger, as ground wire.

b.) Secure antenna lead-in wire and ground wires to house with stand-off insulators spaced from 4 ft. (1.22m) to 6 ft. (1.83m) apart.

c.) Mount antenna discharge unit as close as possible to where lead-in enters house.

d.) Use jumper wire not smaller than No. 6 AWG (13.3 mm²) copper or equivalent, when a separate antenna grounding electrode is used. See NEC section 810-21(g).

14. Lightning — For added protection for this video product receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power-line surges.

15. Power Lines — An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching power lines or circuits as contact with them might be fatal.

16. Overloading — Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

17. Object and Liquid Entry — Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the video product.

18. Servicing — Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

19. Damage Requiring Service — Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

   a. When the power-supply cord or plug is damaged.

   b. If liquid has been spilled, or objects have fallen into the video product.

   c. If the video product has been exposed to rain or water.

   d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.

   e. If the video product has been dropped or the cabinet has been damaged.

   f. When the video product exhibits a distinct change in performance — this indicates a need for service.

20. Replacement Parts — When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

21. Safety Check — Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine that the video product is in proper operating condition.

THE ADVENTURER
INSTRUCTION MANUAL

This product is truly easy to use, however you will find it worthwhile to read this manual as the Adventurer is so flexible and has so many features that it is possible there are applications for the unit that you had not realized were available or even possible. Most operators of the Adventurer will be quite familiar with a lot of the controls detailed here so reading the manual will not take long.
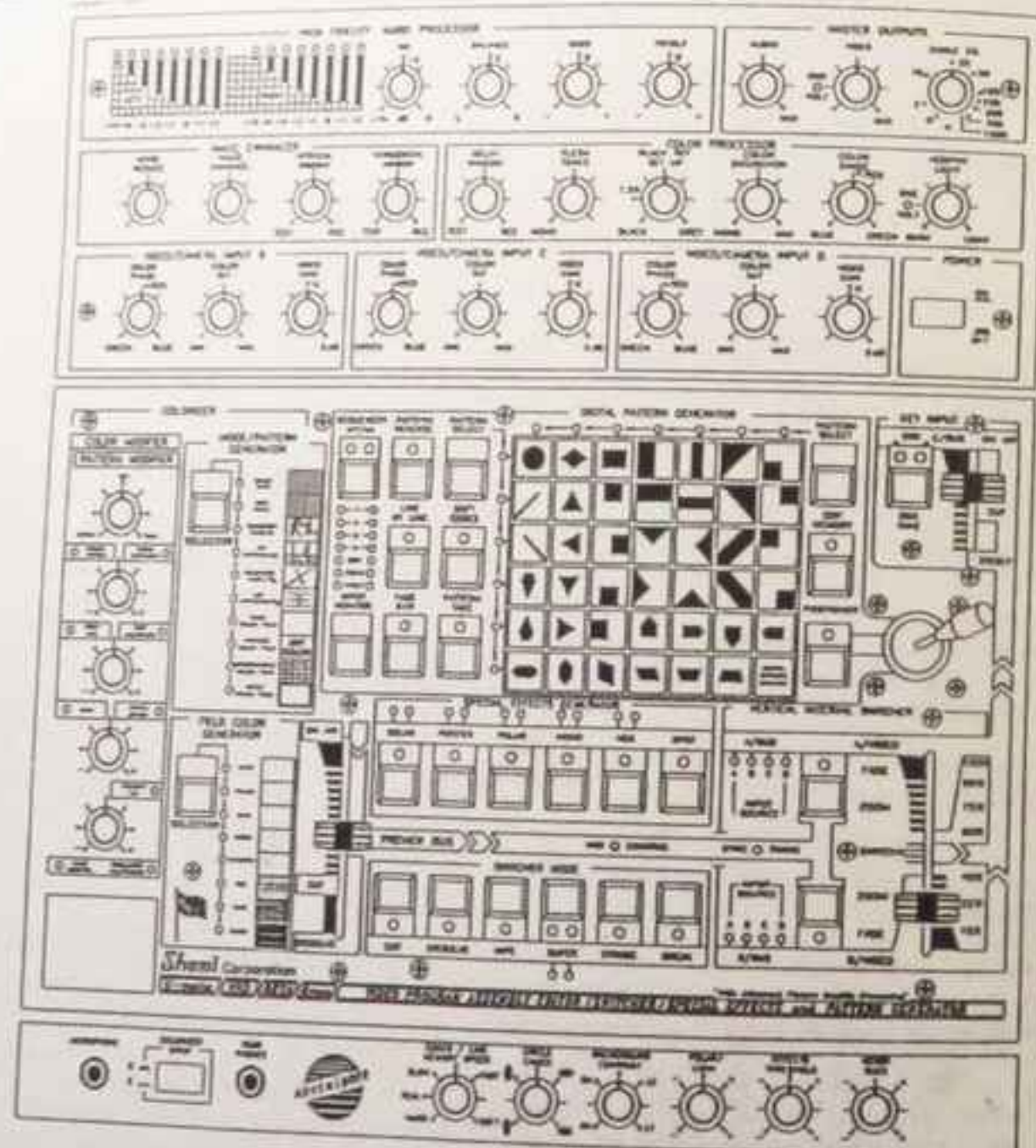

FIG. 1

Congratulations! You are the exceptional owner of a superb product designed by a group of people comprising a team of dedicated video users and designers. This product is truly a powerful user friendly high-performance product that will give many years of trouble-free service.

To understand a book, you start at the beginning, and the beginning starts on page one in the upper left, goes to the right and then repeats over and over until you get to the bottom of page one. We will do the same when instructing you on the features of the Adventurer, starting with the top left control panel and going right and down in order, similar to reading. There are three sections in this manual, first an overview, next a section on hook up and early use and finally instructions on advanced use of the Adventurer.

This product is very versatile and offers many options and opportunities. It is, in fact, impossible to cover the hundreds of possibilities of hook-ups, effects and options possible. However, if you understand **THE BASICS**, you can do and create every effect and option possible and even more importantly you can hook-up and get the exciting results you want every time. From time to time throughout this manual, we will highlight the words, **THE BASICS**. Following these words will be a basic explanation of what is going on and what to do in any desired case. Then, armed with a clear understanding of the comments therein, you can proceed in your own exciting way. Now, let's begin.
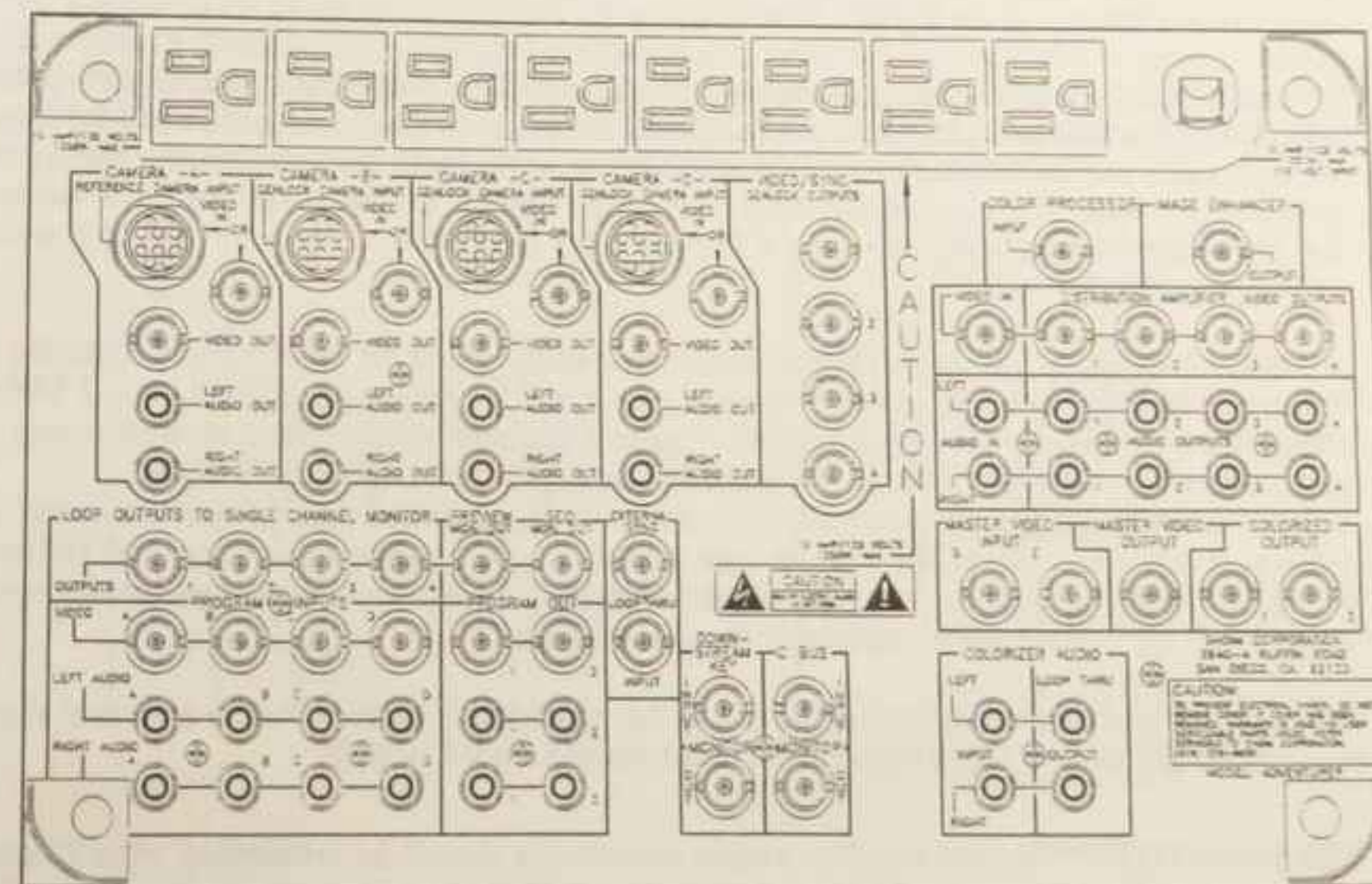

FIG. 2

THE BASICS - Concerning Inputs and Outputs: All Shomi products have inputs and outputs. You should note that inputs are referred to by a letter (A, B, C, or D, etc.) and outputs are referred to by numbers (1, 2, 3, or 4). Next, it is important to understand that outputs go to inputs. (Refer

to Glossary of descriptive words relating to specific types of outputs and inputs that may exist, the glossary is found on page____.) Inputs and outputs are limited, usually by volts, watts or signals. These are very critical, pay particular attention to them. An example: A video output of a camera would be connected to an input on the Adventurer and the appropriate output of the Adventurer would go to a monitor and others to a VCR. So outputs go to inputs. Just keep them the same, video to video, left to left, right to right.

THE BASICS - Concerning Cables and Connectors: Because of the complex nature of Audio, Video, and RF signals, the transport of their electrical characteristics requires the use of special cables and connectors. Techniques applying terminating impedances internal to the equipment minimize loss, noise, interference and distortion.

AUDIO - This signal provides sound for listening and is the lowest frequency signal used in television. Audio includes only those frequencies which can be heard by the human ear (15 to 20,000 cycles per second, or 20KHz) --from the low rumbling of an earthquake to the high pitched note of a violin. Sound, applied to an electrical signal, causing it to travel down a wire (or cable) is called an audio signal.

In general, audio circuits employ a characteristic impedance of 600-ohms to enable high quality sound reproduction and playback. Connections are generally made with shielded cables or twisted-pair, and interface to standard RCA phone style jacks as found on the rear of the Adventurer. Note: The Microphone input on the front panel is intended to be used with medium and high impedance microphones using a 1/4 inch jack. Any Microphone under 10K ohm would be inappropriate.

VIDEO - This signal produces the pictures for viewing, and is the middle signal in terms of frequency (going from 60 cycles per second to 4.2 million cycles per second, or 4.2 MHz). Video is a very complex composite signal -- since it contains all the information necessary to provide us with a viewable picture. The color standard applicable in the U.S. is NTSC. Video circuits employ a characteristic impedance of 75-ohms and one volt peak to peak. In general, a coaxial cable of the RG-59 type, consisting of a braided shield around an inner conductor should be used to route video signals from the source output to other equipment inputs via a "BNC" type connector or other equivalent on both ends.

It is imperative that connections made are to the appropriate signals. Make sure that video connections are made to video input/output terminals and not RF or UHF.

TERMINATORS - Unused monitor output connectors should be terminated with 75-ohm terminator plugs to avoid introducing noise into the unit. See terminator in glossary page. See hookup diagrams in FIG. 48 on page 47. Put the terminators to all connectors shown in FIG. 14 on page 11 that do not get connected to a monitor with a cable. (Plain Talk: After all your equipment is hooked up to the Adventurer and if at that time you have outputs on the Adventurer that are marked loopthrough or monitor output, they need a terminator put on them! If you don't, your signal will be distorted.)

RF - This signal carries both the audio and video signals transmitted through the air or cable system, from a TV station to your TV or recorder. Radio frequency signal (abbreviated to RF) is the highest frequency signal in television (50 to 890 MHz).
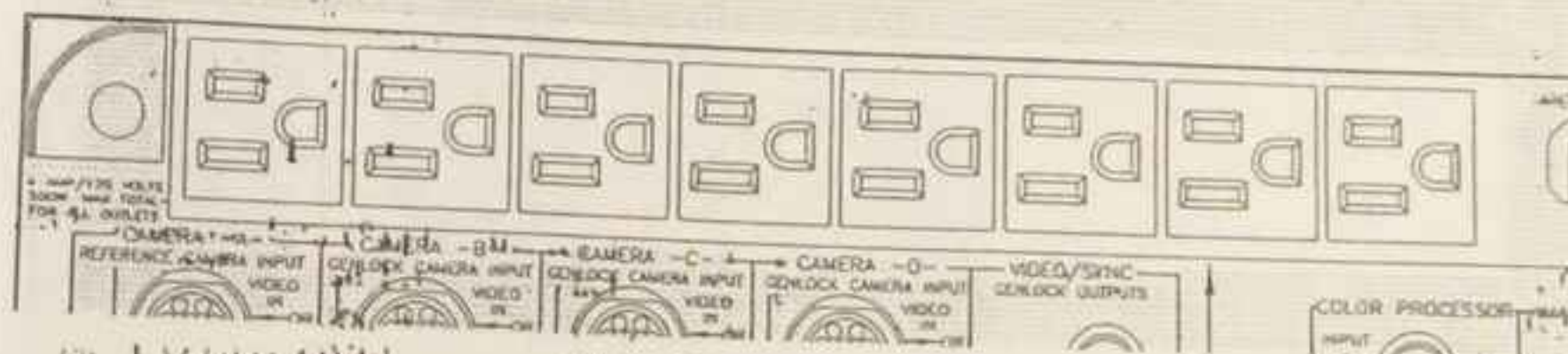

FIG. 3

FIG. 3 shows eight (8) plug-ins for 110V. (Not available in 220V PAL products due to a lack of space. Sorry!) These 110V receptacles are specifically provided for supplying power to eight (8) small video monitors. CAUTION - These outlets can provide a combined total of 500 watts, 4 amps. DO NOT OVERLOAD THESE OUTLETS. Note the caution warnings on the rear panel and throughout this manual. They are very important to you and your product.
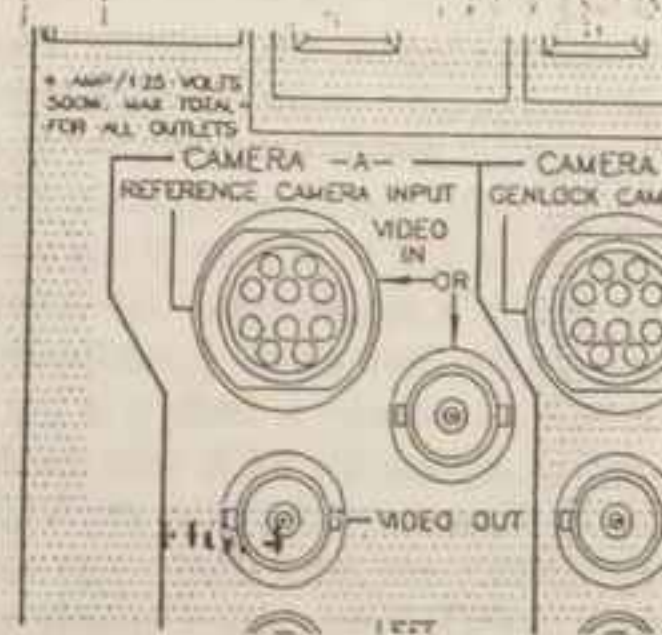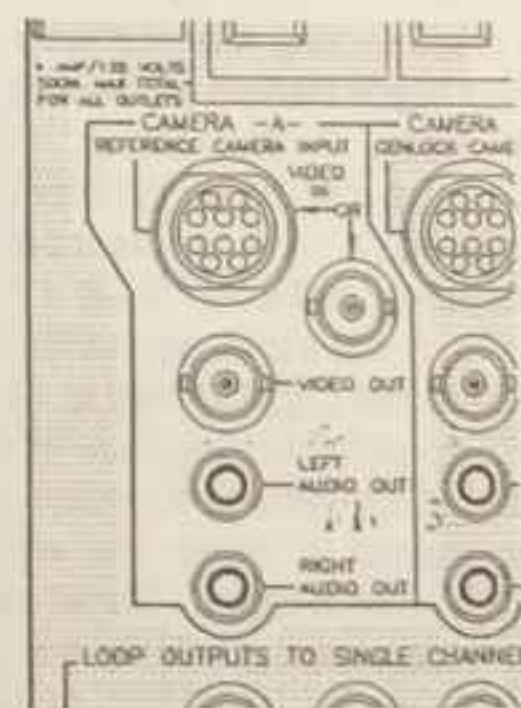

FIG. 4

FIG. 5

FIG. 4 is the jack array that provides the connectors for two types of camera inputs and their outputs. Some cameras have a single 75 ohm BNC cable output and others have a 10-pin cable output. Other cables that are not 10-pin must be adapted to 10-pin by using the original manufacturer's 10-pin adapter. If your camera has the 10-pin connector cable, connect it to the 10-pin input in FIG. 4. If your camera has a BNC connector cable for video out, connect it to the

BNC input in FIG. 4. Note the word "OR" between the two connectors seen in FIG. 4 and FIG. 5. It means you can use the BNC "OR" the 10-pin, but not both, in a single input location. It is the same for all four camera inputs, use only the 10-pin "OR" the BNC.

Camera
connection
FIG. 6

EXCEL CHART

NO.	CAMERA CONNECTION (BOTH)	SYNC CONNECTION
1	VIDEO IN	HORIZONTAL FREQ
2	VIDEO GROUND	VERTICAL RESET
3	NO CONNECTION	SUBCARRIER FREQ
4	NO CONNECTION	HORIZONTAL DRIVE
5	RIGHT AUDIO IN	CIRCUIT COMMON
6	NO CONNECTION	NO CONNECTION
7	LEFT AUDIO IN	NO CONNECTION
8	AUDIO GROUND	NO CONNECTION
9	POWER GROUND	NO CONNECTION
10	+12v UNREGULATED	NO CONNECTION

The 10-pin connector accepts stereo audio from your camera Microphone and provides the signal at the L & R RCA jacks marked "Audio Out" located directly below the 10-pin input connector. The 10-pin connector also provides up to 1 amp of 12 VDC power per camera. CAUTION - DO NOT EXCEED A COMBINED TOTAL OF 4 AMPS FOR ALL FOUR CAMERAS! The 10-pin connector and the BNC input are passed to the Video output located directly below the 10-pin connector. (See FIG. 7)

The connector array in FIG.4 is probably best suited for camera inputs, but you may want VCR video as a master input instead of a video camera signal, and in most cases the VCR signal will work just fine. Note: "Video in" is "Video in" as long as the actual video signal quality is acceptable then there will be no problem. Connect it to the BNC Video in shown in FIG.4. If you choose to connect a VCR to this input, you need to be aware that VCR sync is not stable and as such, many cameras and other VCR's will not genlock to a VCR master sync. However, some will work, but if it doesn't lock up stable after adjustments on the front panel, (specifically Black Reference and Additive Light shown in FIG. 29), it is not the Adventurer at fault, it is the VCR's unstable sync. Two possible solutions to this problem are: 1). replace the VCR with another that has better sync quality (this is standard procedure), or 2). Frame synchronize the VCR sync and/or time base correct it. Note: Use your master or best quality and most used video source as the input to the Camera A input. These connectors, shown in FIG. 5, on page 6, supply video to the front panel controls marked Camera B, C, and D. (See FIG. 30 on page 22.)
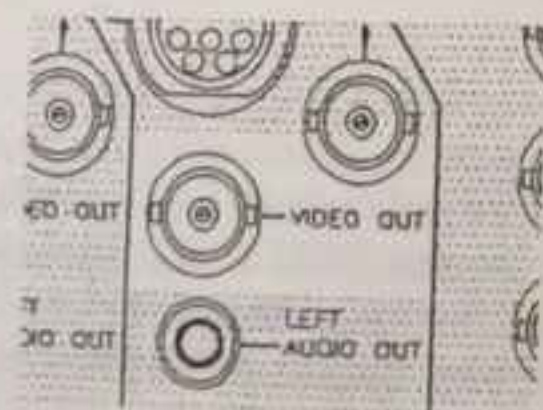

FIG. 7

FIG. 7 Shows the Video Out Connector. These outputs connect to the 7232. Output from A is unprocessed video. Outputs from B,C and D are processed with corresponding front panel controls shown in FIG. 30.
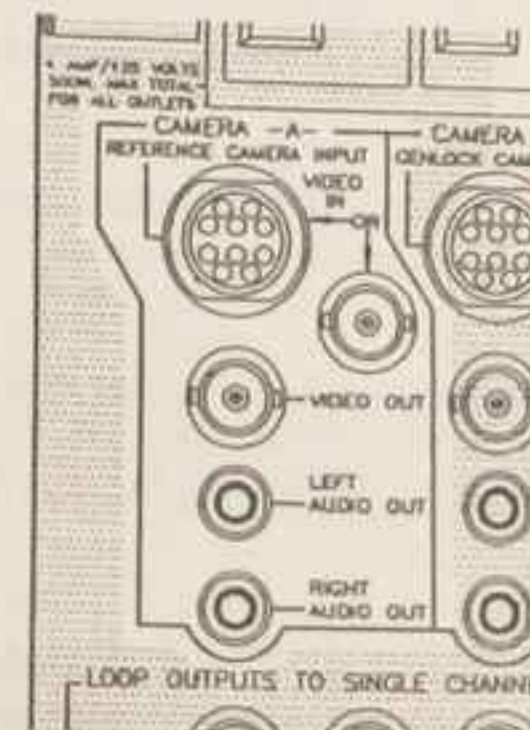

FIG. 8

FIG 8 Shows the left and right channel Audio Outputs. Just remember that Audio follows Video.
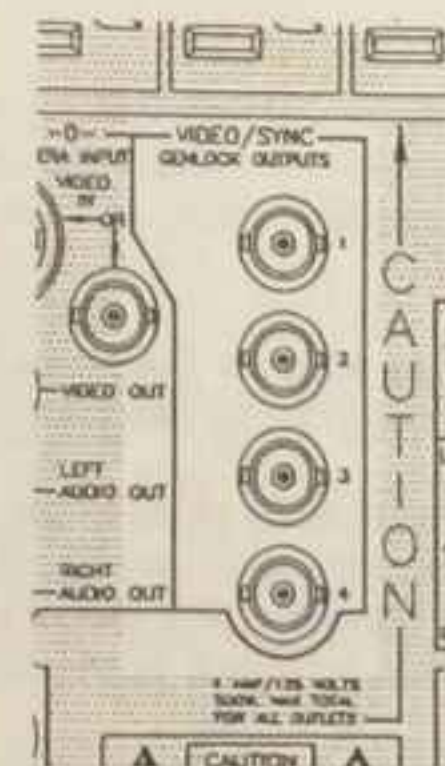

FIG 9

FIG. 9 shows the Video/Sync Genlock outputs. These are outputs that connect to Genlock inputs of the items you want genlocked, such as cameras, titlers, TBC's, switchers, and Master Sync input on the rear of the Adventurer (FIG. 19 on page 14). Each of these devices may or may not have the necessary individual calibration controls to complete lock-up to the signal provided by

FIG. 10

⑨ Horizontal phase control

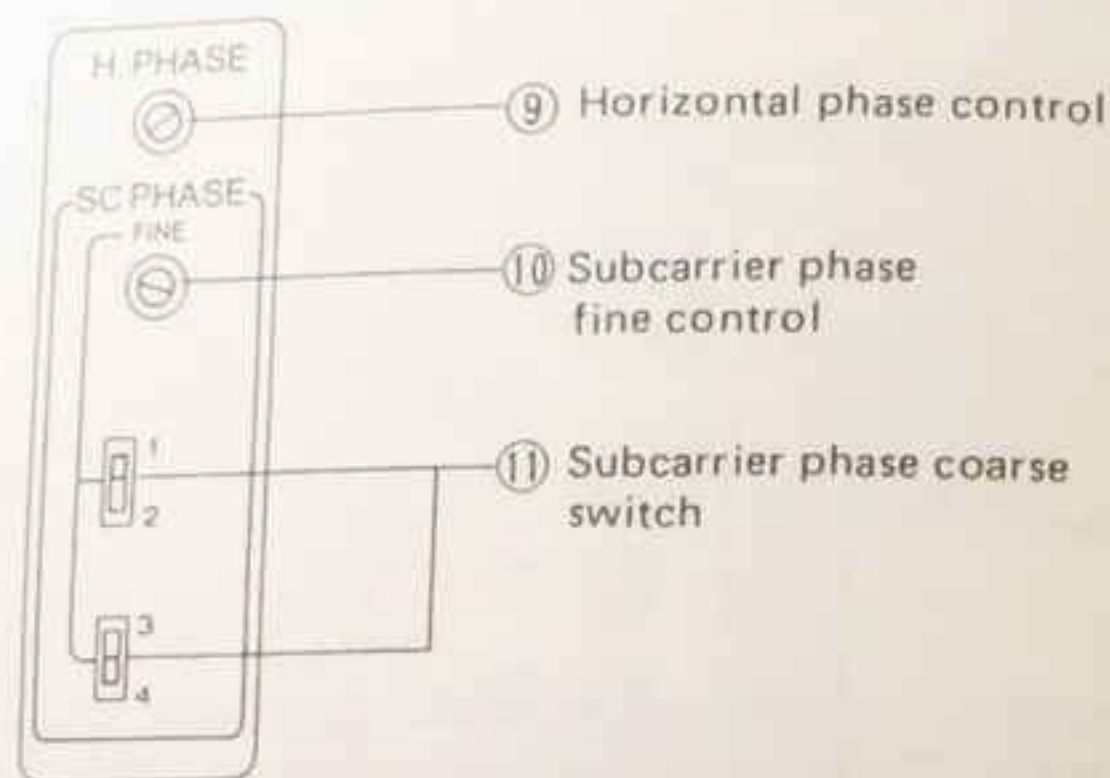⑩ Subcarrier phase fine control

⑪ Subcarrier phase coarse switch

Horizontal Phase Control - The horizontal phase of the camera signal is adjusted to match the horizontal phase of the signal at the Gen-lock Input Connector or the 10-pin SEG connector. This control allows fine adjustment of the subcarrier phase set by the Subcarrier Phase Coarse Switch.

Subcarrier Phase Fine Control - This control allows fine adjustment of the subcarrier phase set by the Subcarrier Phase Coarse Switch. It allows continuous control of up to plus 90° subcarrier phase rotation on 4 different settings to match the phase of subcarrier signal at the Gen-lock Input Connector or the 10-pin SEG connector.

This control should be adjusted together with the Subcarrier Phase Coarse Switch when the camera is used in the system using the special effects generator or the system switcher.

Subcarrier Phase Coarse Switch - The subcarrier phase of the camera signal is adjusted from 0° to 360° in 90° steps with these switches as shown in FIG. 10 for matching the phase of the subcarrier signal at the Gen-lock Input Connector. For proper settings use monitor and program outputs and match the colors. After this is achieved, further adjustments can be made with the front panel controls shown in FIG. 30.

THE BASICS - Genlock, a term referring to vertical capture limits of timing errors in the vertical domain of two unmatched, on the fly video signals. Vertical genlock can be corrected by an adjustable limit in conjunction with error compensation for color phase error due to cable length differences and the necessary matching of picture elements found on most genlock cameras and on the Adventurer (See FIG. 30). Note that genlock refers to vertical. It does not

9

apply to horizontal jitter, (see Frame Synchronizer and TBC in the glossary for explanation and definition). Note: Video Cameras are stable video sources due to the fact that they have no moving sources and are thereby readily Genlocked if they are fed a stable signal as a master. Signals originating from VCR's are a mess since they have moving parts and therefore they have moving sync. Good luck!
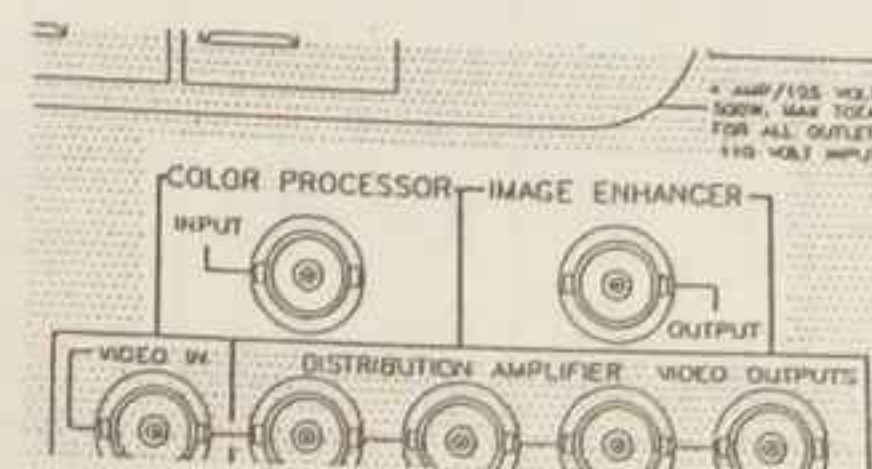

FIG. 11

The connectors you see above in FIG. 11 provide the input to our international award winning color processing and image enhancing circuits. See FIG. 48 for the most likely hook-up of color processing and image enhancing. Although this may be the most likely hook-up, you may choose other alternatives. As an example: output of any color deficient source needing enhancement and/or processing for special applications can be passed through these connectors to improve, fix and correct that source before further processing and mixing. These outputs are processed by the front panel controls described in FIG. 28 on page 20 and FIG. 29 on page 21.
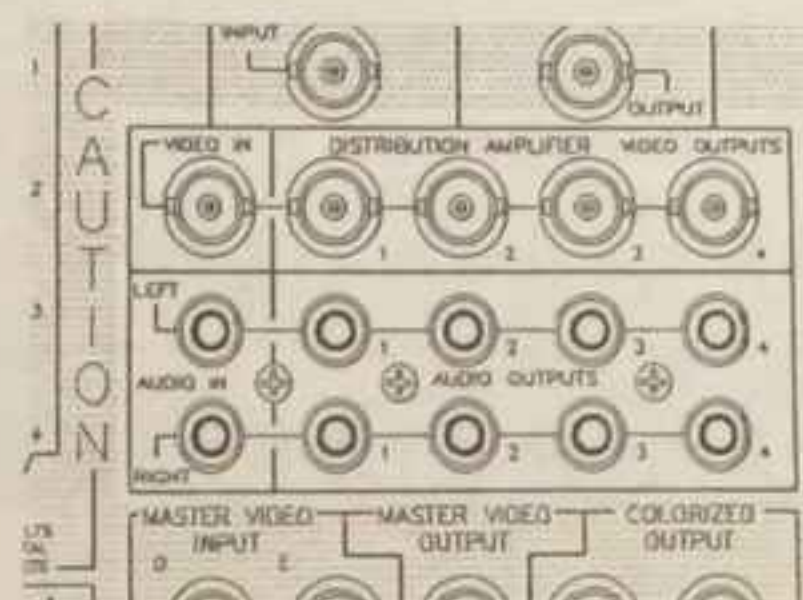

FIG. 12

The Distribution Amplifier inputs and outputs in FIG. 12 are designed to distribute its input to four outputs. The most likely hook-up of these connectors is found on page 48, in FIG. 47. There are hook-up options that you may find useful. For example, the audio is not tied to the video so even more flexibility is provided for your application. These rear panel inputs and outputs are controlled by the front panel Master Video and Audio Outputs described on page 19 and in FIG. 27.
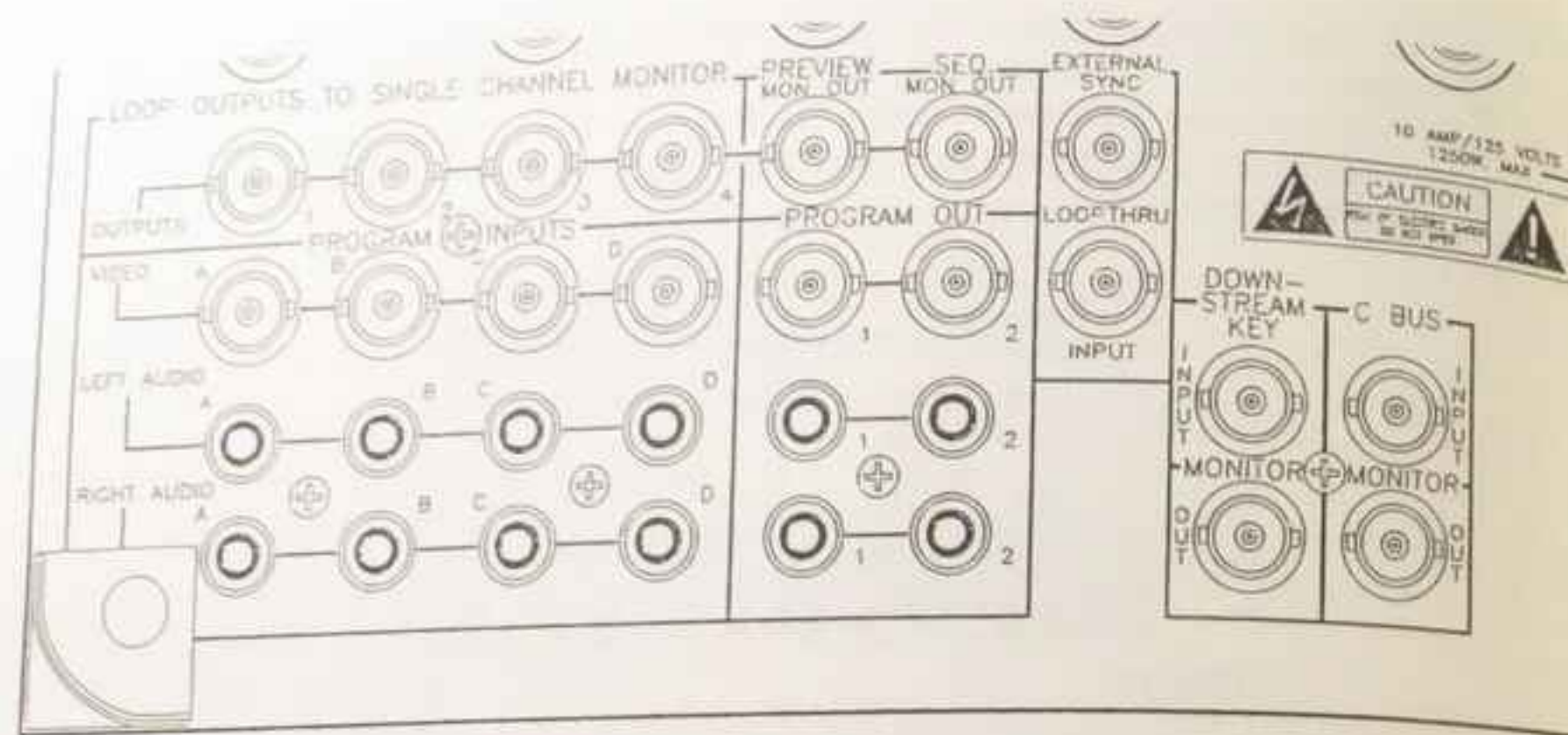
10

FIG. 13

FIG. 13 shows the entire subsection of the production switcher outputs and inputs.
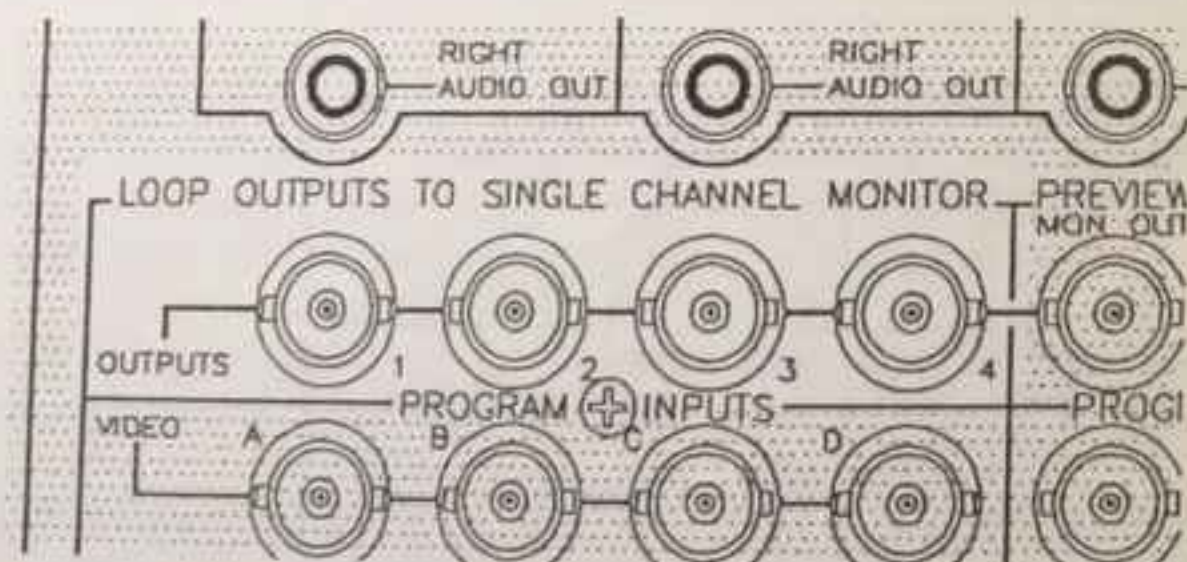

FIG. 14

These are the connectors provided to supply video output matching the similarly marked input to the effects switcher that was described in FIG. 12 on page 10. These four connectors provide output to four monitors so that the switcher operator will have an individual monitor source for each switcher input, A-B-C-D. (see below for C Bus and DSK loop connectors). See also FIG.48 on page 47 for hookups.
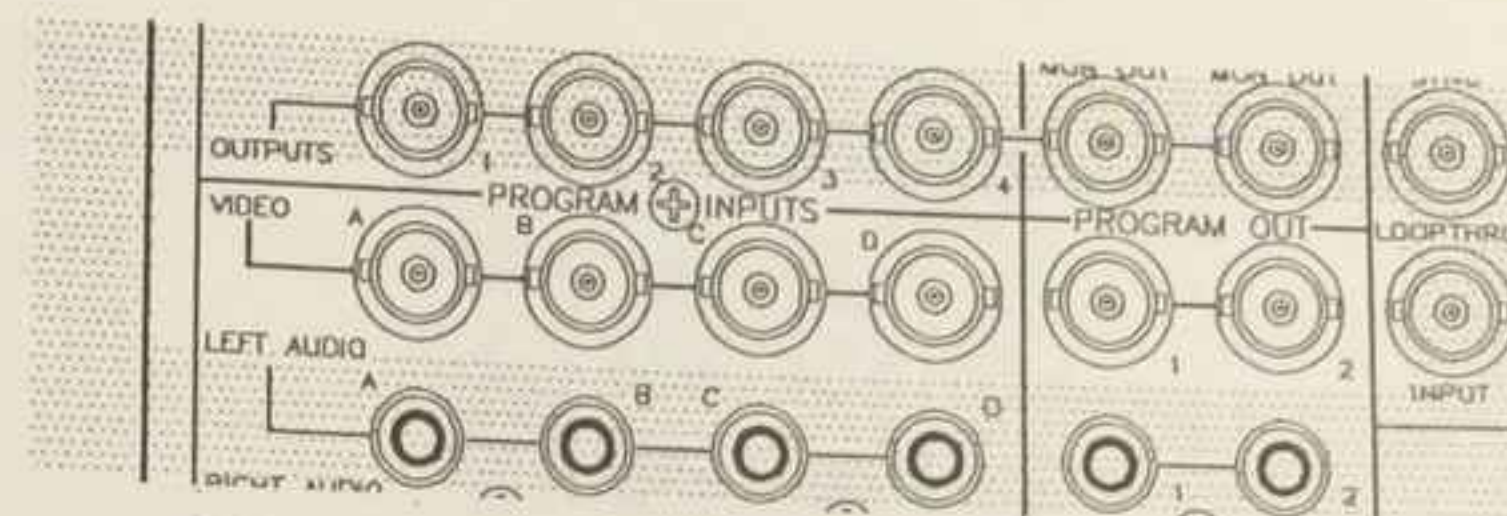

FIG. 15

These are the inputs you want connected to Video sources that you want switched, mixed and/or combined for new program material output. The master most used or the best quality video goes to A, the next most used to B and so on through C and D. These inputs are controlled on the front panel. See FIG. 44 on page 40, FIG. 45 on page 42, and FIG. 46 on Page 43. Refer to the hook up FIG. 48 page 47. Don't get confused by page 7 line 20 where it refers to the best video in (Master) going to Camera A input and now we say here that it goes into input A of the switcher. Both of these statements are correct depending on the equalizer that you want hooked up and what you want to accomplish. See suggested hook-ups on FIG. 48 page 47.

FIG. 16

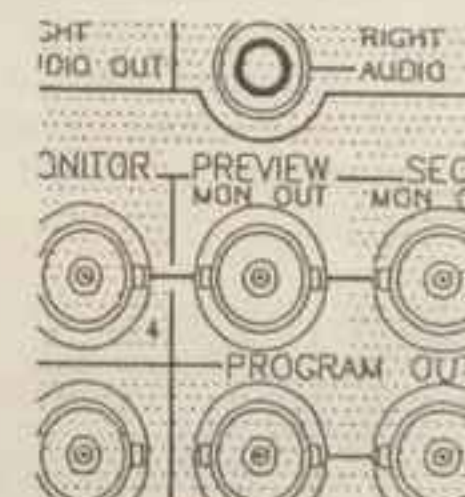Preview: This is the output that you connect to a monitor called preview. This output provides a video picture that looks ahead at the video processing accomplished by the front panel special effects or changes to the program before the effect goes on air. See FIG. 41 on page 34 to learn about the front panel controls and the marvelous benefits this output provides. See output diagram FIG. 48 on page 47.
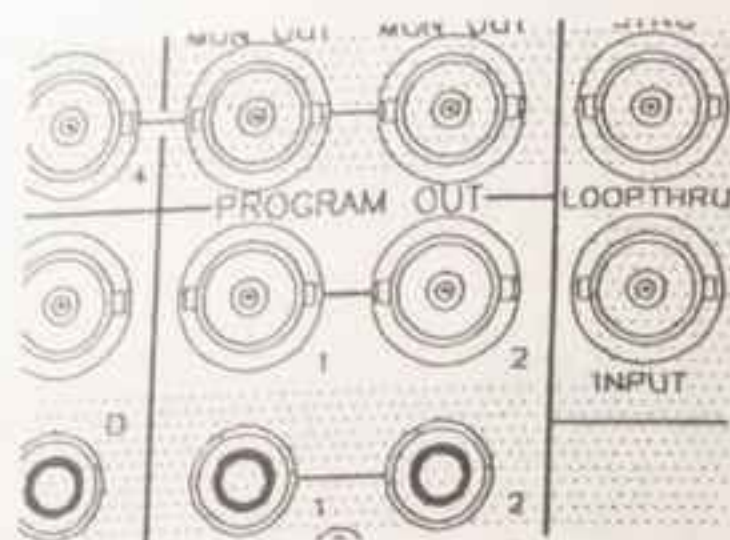
FIG. 17

This output is your Program output. Connect it to your output monitor. Note: If you prefer to bypass this output just connect the program monitor to output from the recording VCR found as video out and audio out of your VCR. Both ways work but connecting the monitor input to the VCR output directly has an advantage by checking program output further downstream which may be better for your program recording confidence and security every time but both ways will work with no problem.

These connections go to a VCR, a Satellite uplink, a Television Transmitter, an End Monitor or anything else you desire to receive the mixed output of the Adventurer. It provides the finished program output. See hook-up FIG. 48 on page 47.
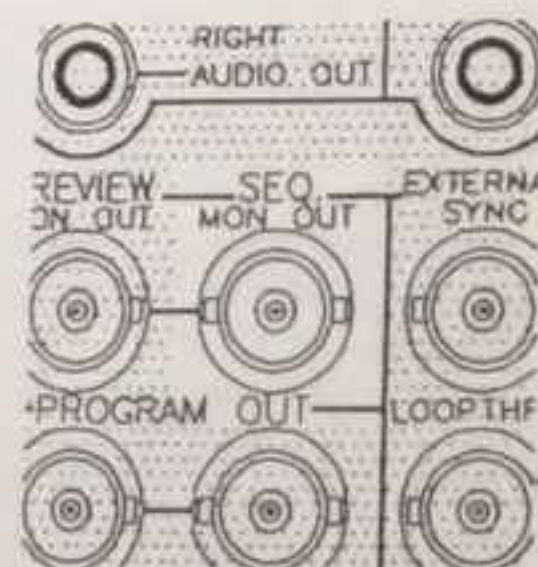

FIG. 18

Seq is short for Sequencer. For front panel control comment on this great feature refer to FIG. 38 on page 30. FIG. 18 shows the output to a single monitor, called a Sequence monitor, and through it all seven Adventurer inputs and preview out can be viewed on a single monitor connected to this output. (Note the 7th input is the E input found lower down on the same panel, see FIG. 47 on page 43). The sequencer is switched on the front panel, FIG. 38 on page 30.

The purpose and advantage of the sequencer front panel controls and indicators and this rear panel connector is for those wanting to use only 1 or 2 monitors, instead of seven, who also need

13

to view preview inputs and program material. The alternative, 7 monitors, is also possible. The Sequencer Switch can be turned On or Off and allows you to select one of seven inputs; Video Input A, B, C, or D; C Bus, DSK, or Preview (PREV) as either the A or B Bus video.
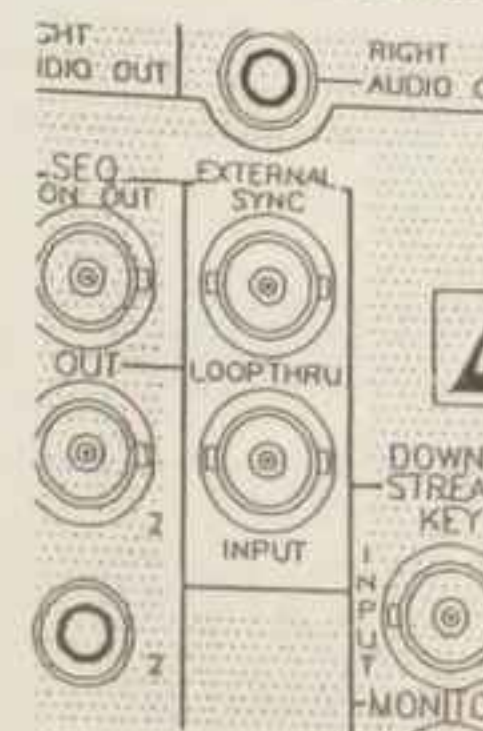

FIG. 19

This feature is provided so that you can supply quality house or master sync to the Adventurer (a big advantage, see options on page 7) and therefore will supply clean and closely matched master sync to the inputs. See FIG. 48 on page 47 for recommended genlock hookups and FIG. 30 on page 22 for sync timing into the front panel. Note that there are other hook-up alternatives for larger TV station or production applications. Use house quality sync when available or a copy of your chosen master sync from the Adventurer sync out in FIG. 7 on page 7.
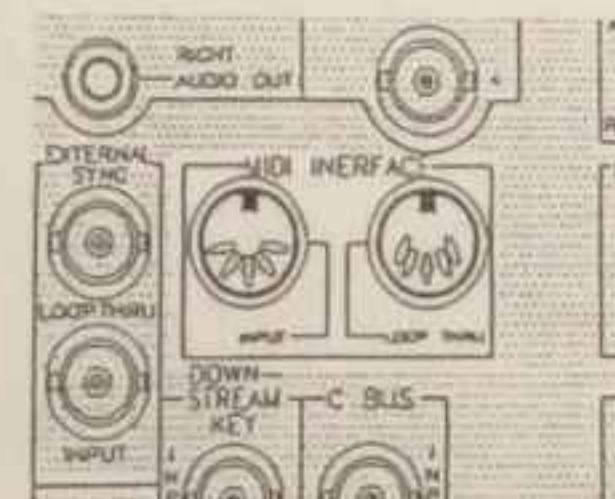

FIG.20

Midi Interfaces: These interfaces provide external computer control over certain features found on the Adventurer.

Your product is not shipped midi ready. This is an option that will be made available. Should you need Midi input, you will need to return your product for internal service after receiving

14

complete details on time, cost and requirements to upgrade for the Midi option that are yet to be determined by Shomi Corporation. It is estimated that only a few customers will need and use midi control. We, as a company, realize that there are indeed those that will desire to use the midi input and as such we are working steadfastly to complete this option and make it available as soon as possible. For details call 619-278-8800 and ask for midi help. Again, midi requires an IBM or other midi compatible computer to provide effects and switcher control from a computer key board.
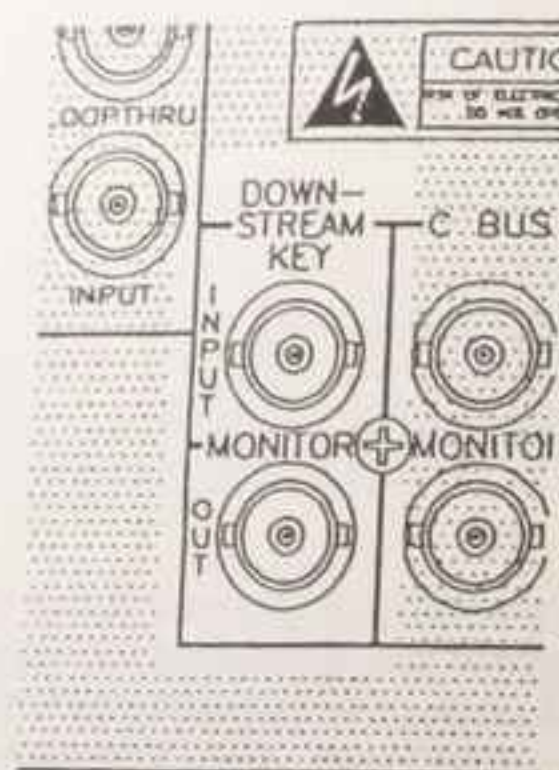

FIG. 21
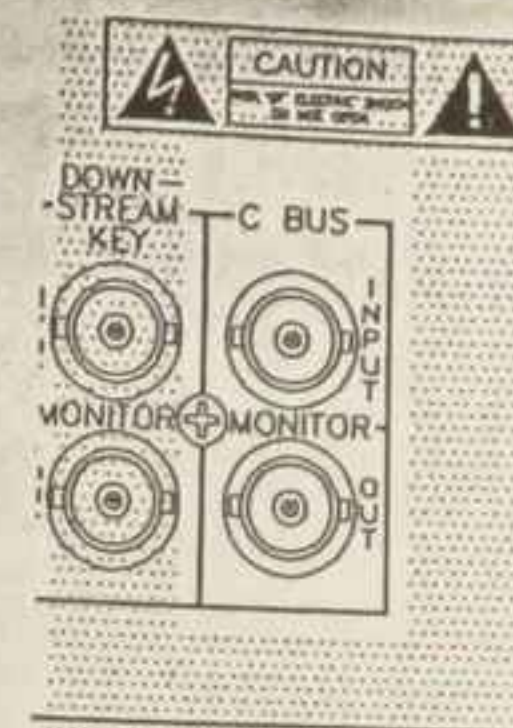
FIG. 22

The Vertical Interval Switcher permits you to select one of the four matrix Video Inputs; A, B, C, or D; through the use of Source Selector Switches for each Video Bus, A or B. This selection is indicated for each bus by the LED indicators. By using the Slide Fader Bar, shown on FIG. 46 page 43, one can fade, Zoom, Switch either Input Bus to its Output Bus which becomes the input to the C Bus Slider Control Bar.
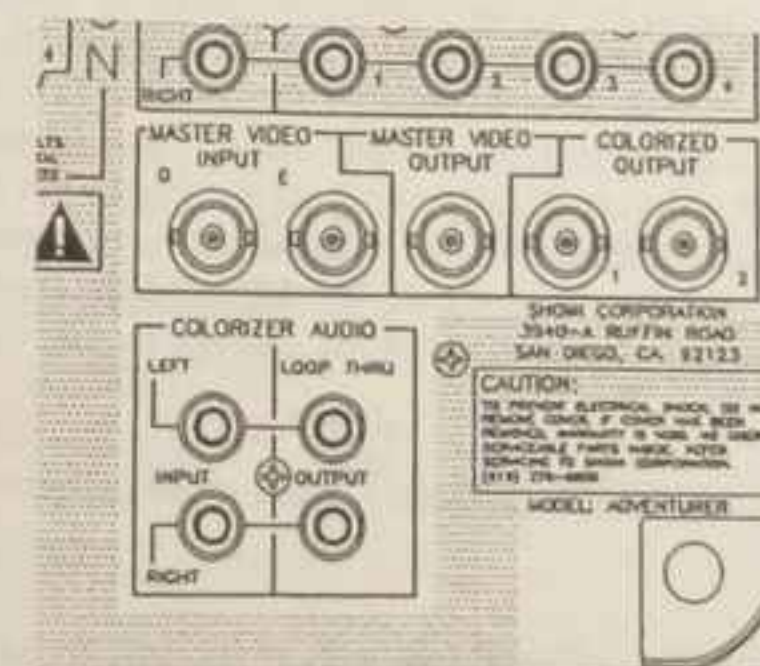
FIG. 23

This is the connector array for colorizer processing. The input marked D and the input next to it marked E are inputs to the colorizeizeizeizer sub section. See FIG. 47 page 43 which shows the front panel selector switch that determines what colorizer input is processed and then routed to both the master Video out and the colorized outputs 1 & 2, see FIG. 23 above and also FIG. 31 on page 23 for front panel control usage and FIG. 48 on page 47 for most likely connection. The

Audio connection is a loopthrough that provides a music beat pulse to strobe color effects described in FIG. 31 on page 23.

FIG. 24

These caution statements were placed on the rear panel because they are important. Please pay attention to them and follow the instructions carefully. Failure to follow these cautions can cause harm to you and your products. Read them carefully. Pay particular attention to all of them. Note also there are absolutely no user serviceable parts inside. Should you attempt to open the case you will void your warranty and you probably will not be able to get it back together, so Do Not open it up. Next, pay particular attention to the max output requirements of the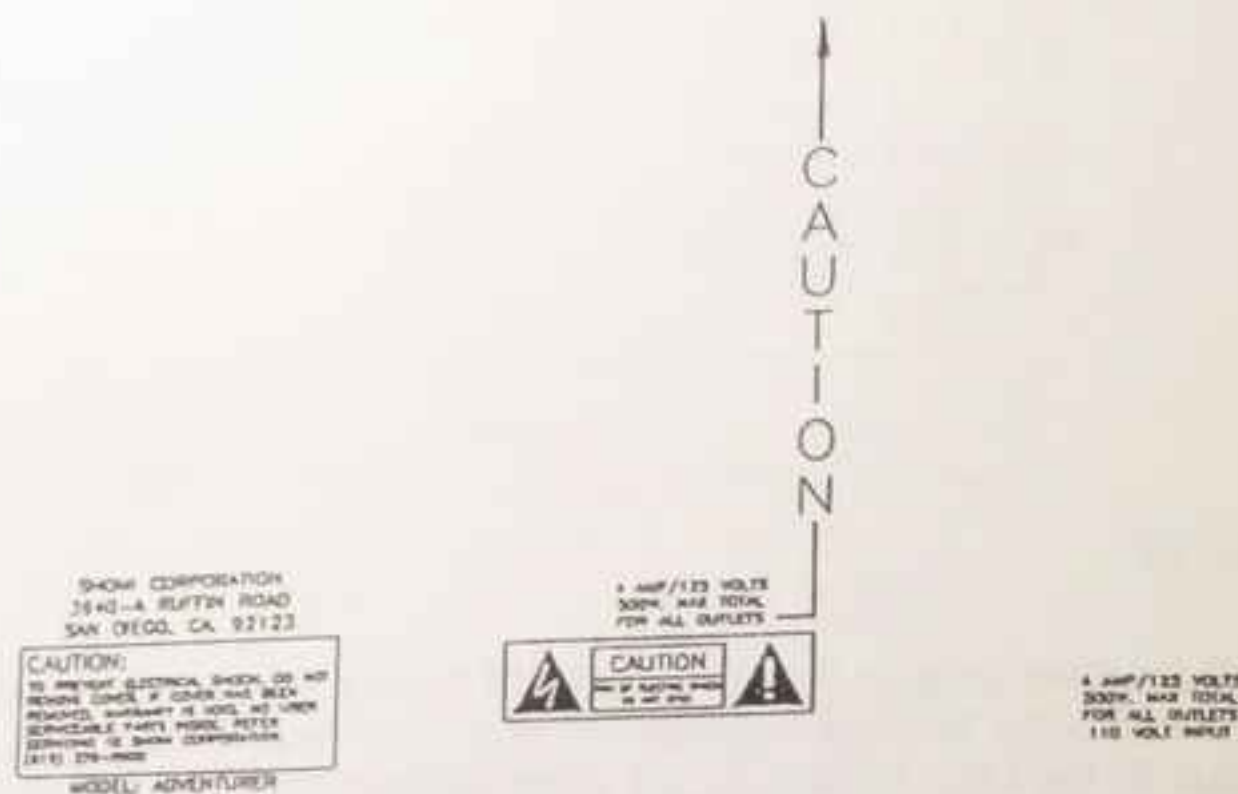 110V power strip provided - they are intended for monitors that, combined, draw less than 500 watts and 4 amps. Overloading this power strip will result in serious damage to your unit, please use them as intended.

Connect power cord to 120 volt AC 60 Hz, grounded outlet unless otherwise designated on rear panel.

Amps___
Watts___
Video In NTSC 1 volt
Audio In
Quantity of outputs
Quantity of inputs
Phones out
Microphone input
Pal products (for use outside U.S.)

17
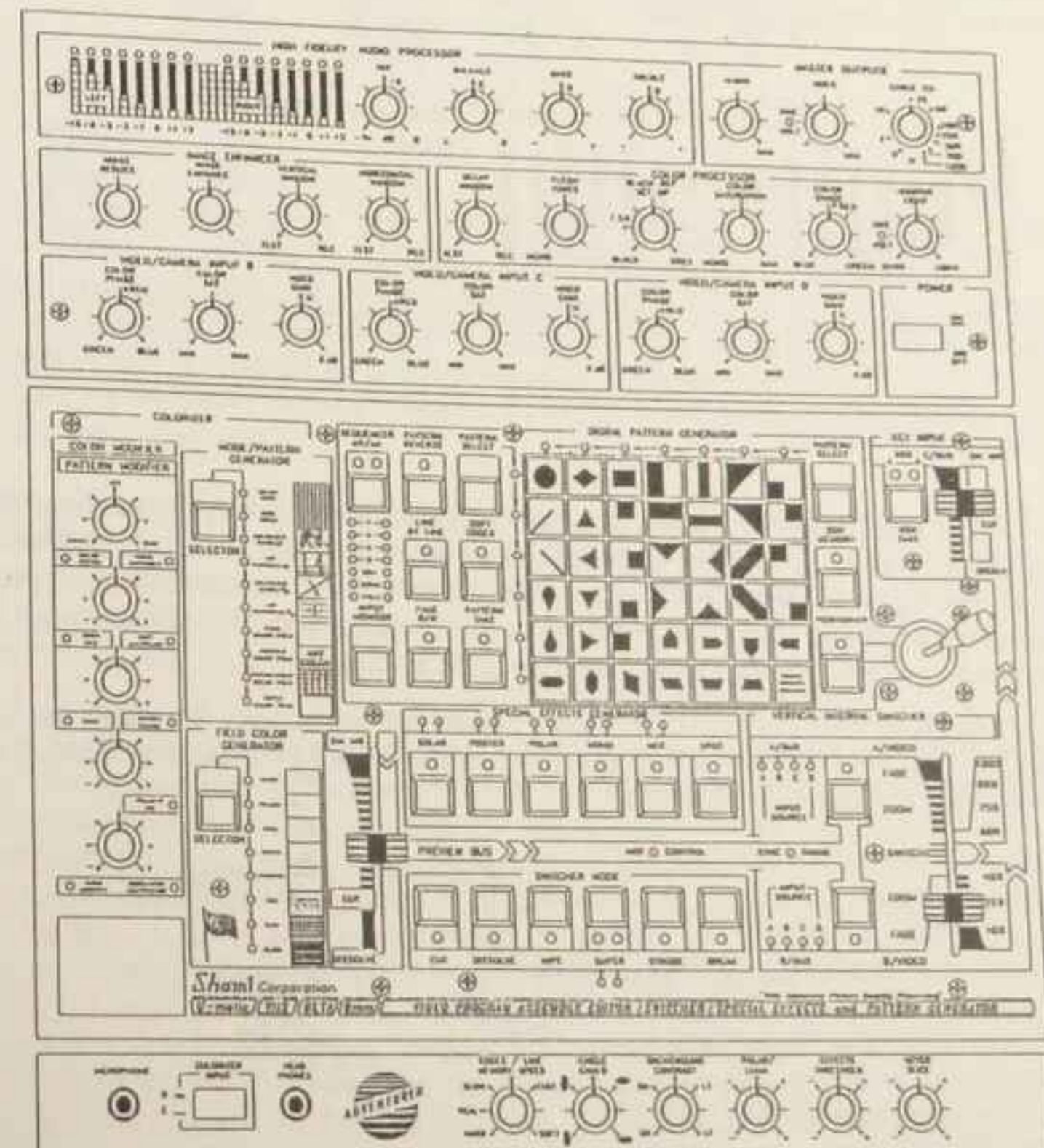
FRONT PANEL

FIG. 25

The front panel of the Adventurer is very user friendly as it is segregated into logical controls and processing arrays. Each individual control allows full command over it's function.
Each of these controls perform the following functions. 1) The ability to correct for errors and signal deficiencies. 2) Provide unique program assembly and high production value. 3) The capacity to mix program material from different sources with a wide selection of different mixing methods and special effects. 4) The ability to power up, control and match several different pieces of equipment that would otherwise be incompatible into one coherent program producing system.

18

In all, these controls give you control of a fast, friendly, powerful and cost effective communication and Video Production Center.

FIG. 26

AUDIO PROCESSOR

Provided on this panel are controls to improve the shape and quality of the sound being recorded. Note the mix control and see also FIG. 8 on page 8. There is a head-phone output and a microphone input, shown in FIG. 47 on page 43, for mixing and monitoring of program material such as microphone variation, over program audio. See FIG. 12 on page 10 for output information and FIG. 49 on page 49 for wire hook up diagram.

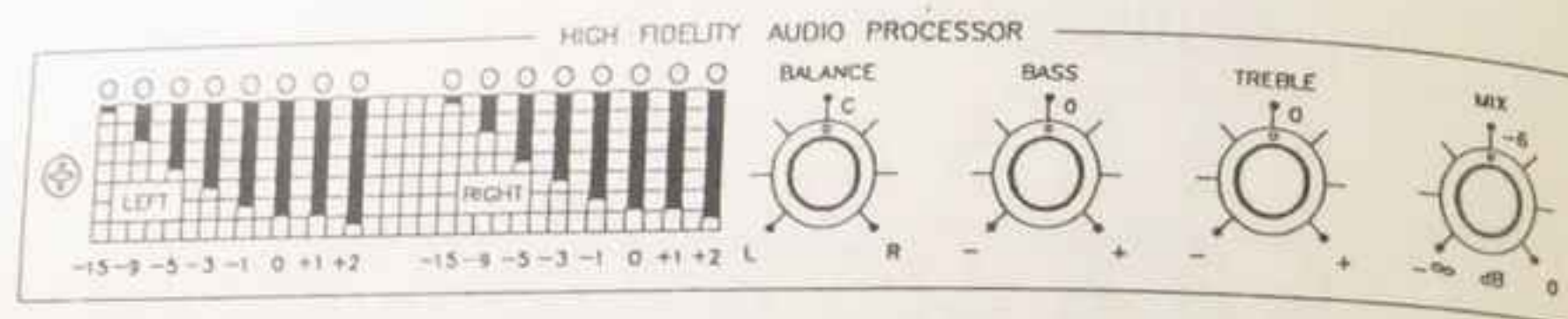The Microphone Mix Control that allows you to mix audio with the video tracks, Treble and Bass Controls lets you increase or decrease these levels and a Balance Control allows you to audio mix the left and right channels.
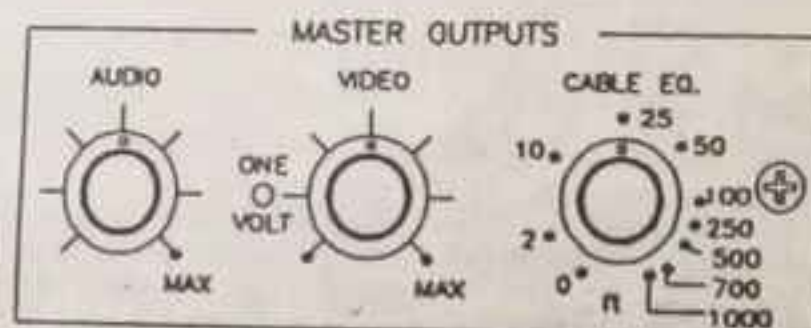

FIG.27

Cable EQ. - This high-performance control, not usually even found on much more expensive units is used to provide frequency response shaping to compensate for losses caused by long coaxial cables. With the control rotated fully clockwise, a 1000 foot run of RG59 cable will be correctly equalized. Long cable runs also cause a net loss in amplitude. This must be compensated for by advancing the Gain Control. This will cause the 1 volt light to flash and is entirely normal. The proper sequence of adjustment is gain first, EQ last. See FIG. 12 on page 10 for rear panel connections and FIG. 48 page 47 for hookup.
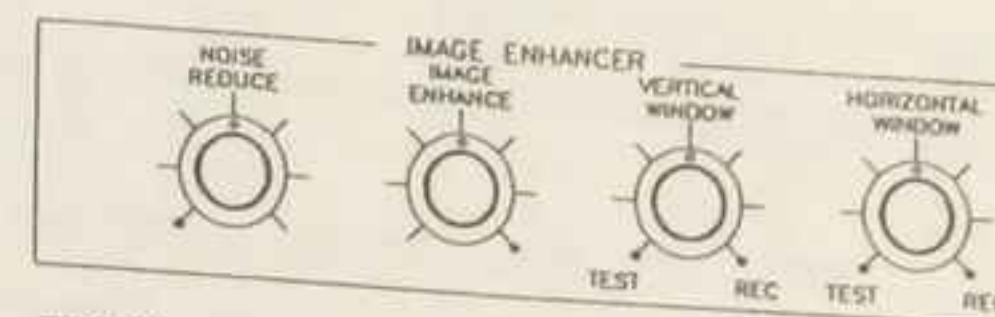
FIG.28

IMAGE ENHANCER

Noise Reduce Control - (Reduces grainy, noisy appearance). This is a variable control which reduces the amount of high frequency noise. Inherent noise which appears as graininess or excessive sparkle may be reduced by rotating the control counter-clockwise. Note: For a six-hour recording, set the Noise Reduce control a bit high - it will record better; again, adjust to your liking and tape requirements.

Image Enhance control - Variable control of enhancement level. Ranges from no enhancement (knob at maximum left rotation) to excessive enhancement (maximum clockwise rotation). Adjust to suit your program material, needs and preference. These Enhance and Noise Reduction circuits are truly marvelous. The results of proper use will be great. We suggest a normal setting at about one o'clock to start.

Vertical and Horizontal Window Controls - The Adventurer is now equipped with both Vertical and Horizontal Delay Windows to provide you with top-to-bottom or left-to-right split-screen comparison of enhanced and unenhanced video. For most comparisons, the Horizontal Window will allow you to compare improved to original adjustments. However, we have found in some occasions that a Vertical Window would be useful to capture an object moving left to right across the screen, so we have provided you with both. IMPORTANT - turn either Delay Window control to compare enhanced and unenhanced images on your screen. For best results, move the Delay Window as you wish over your screen, but always leave the Delay Line visible on your screen so you will remember to turn the controls back to "RECORD" (that is off screen leaving only improved and enhanced picture on the screen) when you have completed your adjustments. Both Window controls must be in the "RECORD" (off the screen) position or you will not be able to record or see the enhanced image. Thereby recording an Image with the delay windows showing before and after lines. Note: Improved and Enhanced picture will appear to left and up of delay window lines on screen and the unimproved original opposite.
See FIG. 11 page 10 for rear panel information and FIG. 48 page 47 for cable hookup.
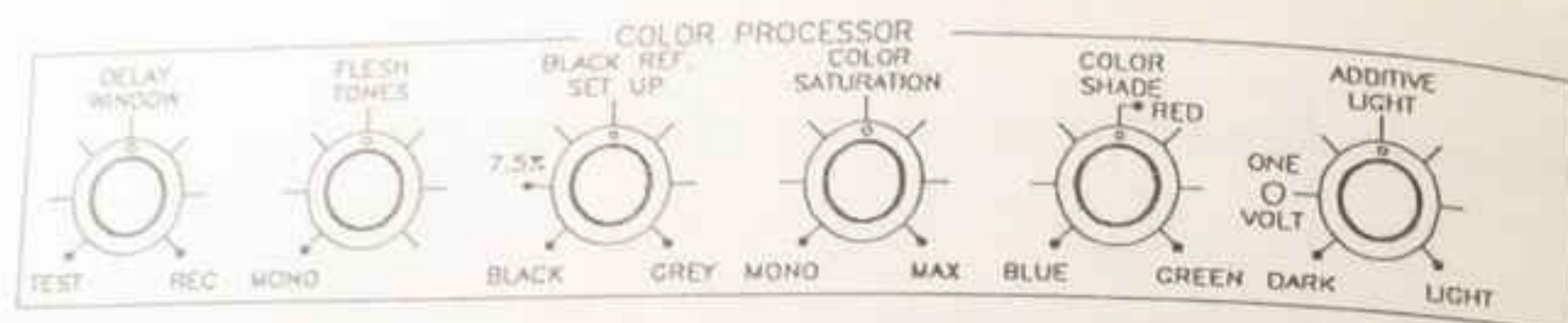
FIG.29

Delay Window Control - For purposes of familiarization with the Color Processor's functions, turn this knob to about 12 O'clock position. This gives you a split-screen image, with non-processed information on the right and the improved and processed signal on the left. Turn the Delay window control to the record position to return the processed signal to the entire screen after adjustments and picture improvements are complete. Experimentation is the best way to learn the Color Processor's special effects capabilities. "Flesh Tones" is a combination of signals, therefore affecting both sides of the window.

Flesh Tones Control - This knob also corrects and sharpens Caucasian skin tones and other subtle color adjustments. Turn knob to mono position for black-and-white or monochrome effects. Note: This control affects both sides of the delay because it is a combination of all color signals.

Black Reference Set Up Control - The amount of black in the video signal is controlled by this knob. The industry standard of 7.5% and is labeled for your reference, but you may adjust this control to your own preference. This control can add brilliance to your picture without video "noise". Black is a foundation of color. If you remove it the color fades, if you add it then the colors brighten. Note: If you experience a fast horizontal jitter in your picture the incoming Video is previously below standard and a far left adjustment of this Black Reference control will push the video down further, too far to correct the situation. In fact it will make the problem worse. The solution is to turn up the Black Reference Control until the jitter stops, plus a touch. This is unusual but may sometimes occur.

Color Saturation Control - This knob determines the amount of color information included in the video signal, recognized in terms of color intensity. Adjust to suit your own tastes and needs as there is enough control to adjust for too much or too little.

Color Shade Control - This controls the over-all proportion of blue, red and green in the video image. This control offers the full range of color rotation, that is 360°. That means that this control will correct for all color phase errors.

Additive Light Control - This control is the signal strength adjustment. The one volt indicator will glow steadily when the signal strength is adjusted to the desired industry standard of one volt. Flashing in the indicator means that the video signal exceeds the desired standard level. The indicator will remain off whenever the signal strength is less than one volt. Too weak a signal will result in tape generation loss and rolling, tearing and darkness problems on your picture. Turn the Additive Light control until the one volt LED is bright and steady for proper

signal strength.

See FIG. 11 page 10 for connections and FIG. 48 page 47 for hookups.

FIG.30

Camera or Video A is not shown because it is the master. Therefore the controls are needed for B,C and D in order to adjust them so they will be matched to the A Video so that the mixed output always looks like it was produced by only one source.

Color Phase Control - This controls the over-all proportion of blue, red and green in the video image. This control offers the full range of color rotation, that is 360 degrees. And that means that this control will correct for all color phase errors.

Color Saturation Control - This knob determines the amount of color information included in the video signal, recognized in terms of color intensity. Adjust to suit your own tastes and needs as there is enough control to adjust for too much or too little.

Video Gain - This control varies the entire signal amplitude to compensate for a variety of factors. Rotating the knob clockwise will increase gain. The setting of this control has a direct effect on the 1 volt light as described below. For those who wish to know signal amplitude in relation to dB's, a setting of -15 dB's corresponds to a signal amplitude of .2vpp. With Gain Control set at +6 dB, the signal level will be approximately 2vpp. For direct viewing, we recommend setting the Video Distribution Amplifier at 1 vpp and adjusting monitor controls to desired settings. For recording, the Gain Control should be set to the industry standard of 1vpp. Remember if long cables are in use the 1 volt LED will not provide a true indication of output level. You may choose to deviate from it to obtain desired picture correction. Note: For this manual the mention of short of long cables will be defined as follows; short cables are considered to be the length found in the average local system application with all components located within a single room. Long cables are lengths required for set-ups using remote units.
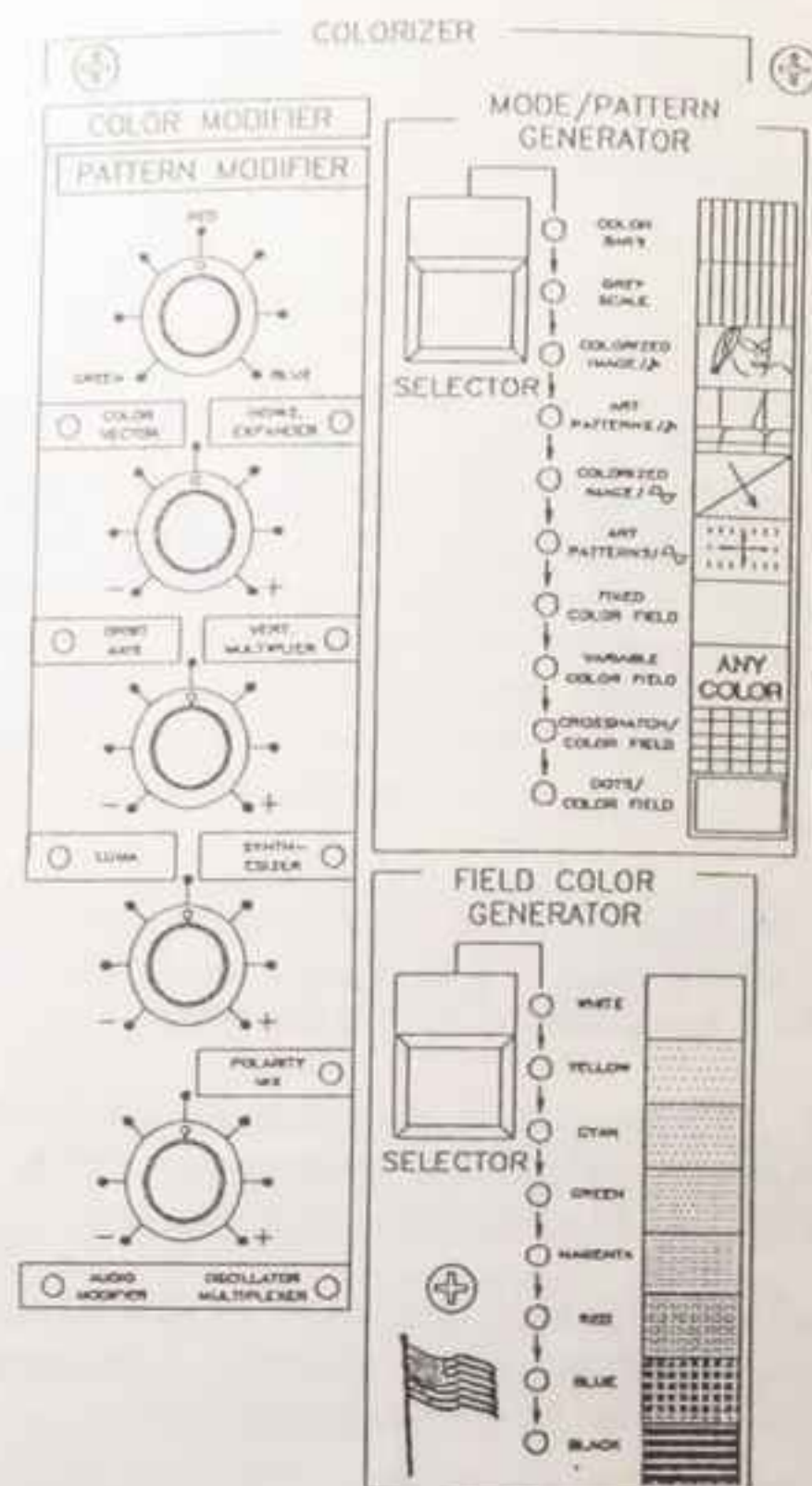
FIG.31

Mode 1 & 2 - In the Color Bar and Gray Scale modes you will note there are no other LED's lit and this means you have no control over their adjustment. They are preset to accurate NTSC broadcast specifications.

Mode 3 - Colorized Image mode with a musical note: Start out with synthesizer control centered, polarity mix control at either end, audio modifier control full off. Color ranges are affected by the polarity mix control with center of range achieving minimum effect. Synthesizer controls adjusts the color painting areas. The audio modifier control will inject modification to the synthesizer, and the synthesizer control will normally have to be turned down when large amounts of audio are used. Audio modifier controls colorization movement of synthesizer and polarity mix controls the image colorization. Adjust until you like the effect and the results. Try VCR or camera video input with music audio. Experiment with superimpose mode and pattern wipes on the SEG. Dissolve mode is also fun when the same input source is used on both busses on the SEG.

23

Mode 4 - Art Patterns made with a musical note: Start out with synthesizer control centered, polarity mix control at either end, audio modifier control full off. Color ranges are affected by the polarity mix control with center of range achieving minimum effect. Synthesizer controls adjusts the color painting areas. The audio modifier control will inject modification to the synthesizer, and the synthesizer control will normally have to be turned down when large amounts of audio are used. With the audio modifier control on the colorizer, create certain type patterns.

Mode 5 - Colorized Image mode with sine wave: The vertical multiplexer, polarity mix and oscillator multiplexer controls all control your live or recorded, video image colorization. Start out with synthesizer control centered, polarity mix control at either end, audio modifier control full off. Color ranges are affected by the polarity mix control with center of range achieving minimum effect. Synthesizer controls adjusts the color painting areas. Mode 5 provides a built in audio source, which is a slow pulse oscillator controlled by the oscillator multiplexer control.

Mode 6 - Art Patterns mode with sine wave: The synthesizer, horizontal expander, vertical multiplier, polarity mix, and oscillator multiplexer all control the color and pattern that you create.

Mode 7 - Fixed Color Field: This is also a preset control. No control is provided over this pattern as they are NTSC broadcast quality standard hue and saturated color. But you can select one full field color from the 8 primary colors in the color bar. To select one of the full field colors, scan them one after another via pushing the selector located in the field color generator section when you are not in Color Bar mode but in "Fixed Color Field mode."

Mode 8 - Variable Color Field: Note the 3 lights in the color modifier mode are lit -- color vector, orbit axis and luma controls are now active. With these 3 controls you can create any color or shade. Every color there is, is Available. For example you can colorize title, patterns and wipes to match bridesmaids gowns or school colors when used with the SEG.

Mode 9 - Crosshatch/Color Field mode: In this mode you get a hi-tech pattern that dramatizes many SEG patterns: try the diamond and square for example. In the Crosshatch/Color Field mode, when you scan the field generator color modes you can change the luminance of the crosshatch from bright to dark to non-existent in black.

Mode 10 - Dots/Color Field mode: In this mode you get a space look to dramatize your production. In this mode you can also vary the brightness by scanning the color field selection. In the Dots/Color Field mode when you scan the field generator color modes you can change the luminance of the Dots from bright to dark to non-existent in black. Again, try this with a box or diamond pattern in the SEG.
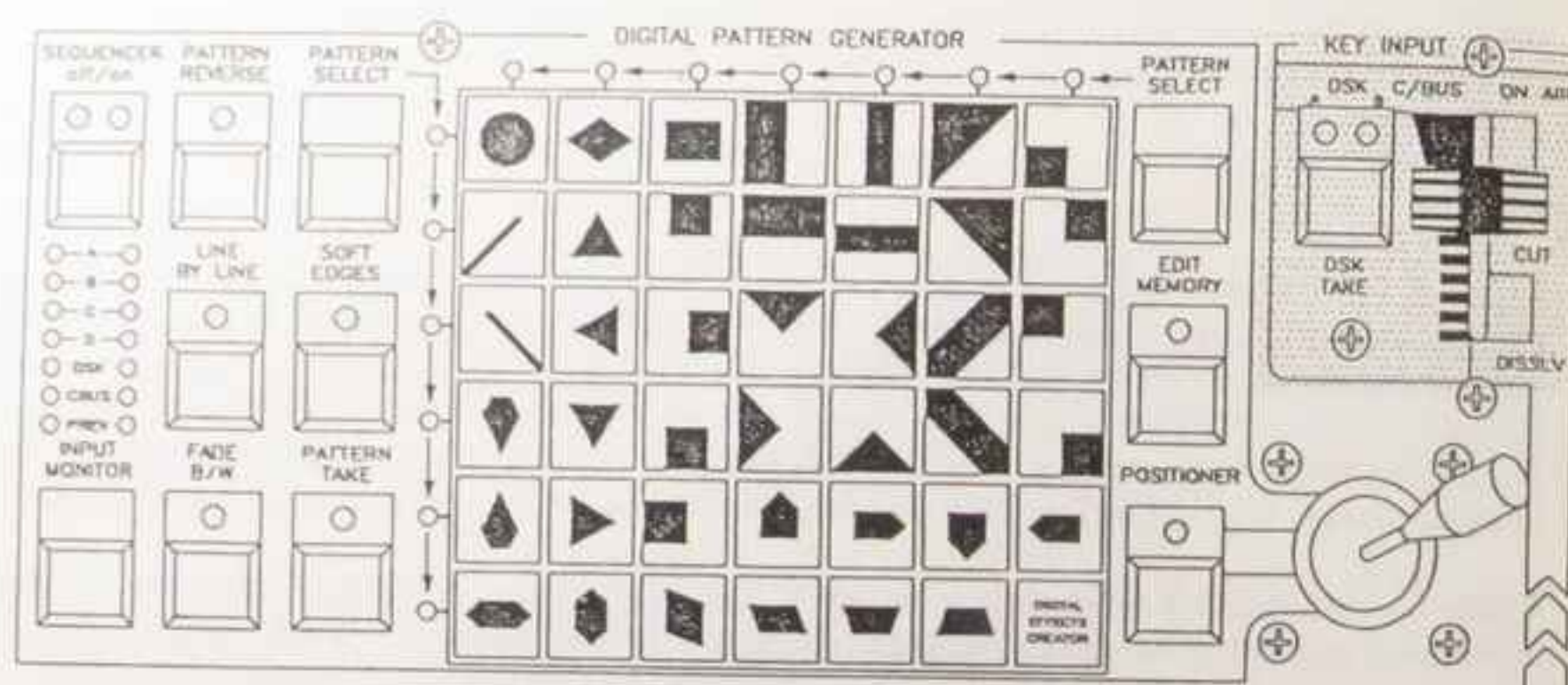
24

FIG.32

DIGITAL PATTERN GENERATOR

The Digital Pattern Generator Section provides the capability to select 42 different wipe patterns including the circle, diamonds, squares, triangles, arrowheads, trapezoids, corners, pointers and curtains and a digital effects generator.

The Pattern selected is controlled by the two Pattern Select Switches which advance a selection in either the horizontal or vertical axis of the Digital Pattern Generator. The intersection of the two lit LED's is the pattern selected. There are a total of forty-two (42) different selectable patterns. The Pattern Reverse Switch, when activated reverses the pattern presentation on the screen thereby doubling the number of patterns.
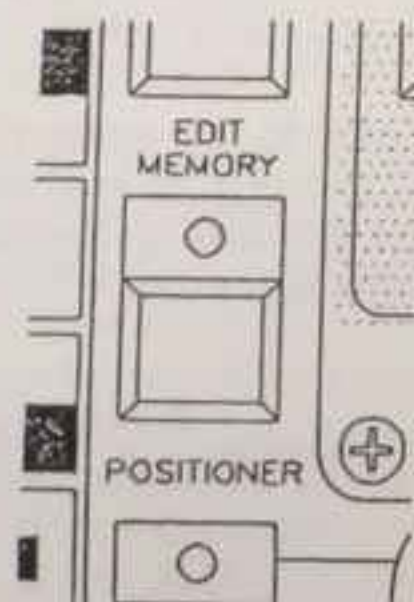

FIG. 33

25

EDIT MEMORY - When Edit Memory is pressed, the green LED will light and blink. While the LED is blinking, effects can be programmed into memory. It will be recorded at the same speed you perform the functions. If you pause between the functions a pause will be recorded. When you finish the sequence of events or the memory is full, push the Edit Memory button again and the sequence will play back. If you program too many functions into the memory than all the pattern LED's will blink and no more functions will be recorded. Pushing the Edit Memory button again while the sequence is running will erase the sequence.

When the recorded sequence is playing back, all other functions are still operational so you can add other effects to those already programmed. The playback speed can also be controlled with the front panel control labeled Edges/Line Memory Speed shown in FIG. 48 on page 44.

PATTERN SELECTION - The pattern to be used for a standard wipe or other effect, such as Spotlight, is selected from a matrix of possibilities displayed in a chart on the top panel. The pattern in effect is taken from the intersection of the row and column indicated by LEDs on the edges of the pattern matrix. Three buttons are involved with pattern selection: two for selecting a pattern from the matrix, and one that causes the pattern selected to become the "current" or "active" pattern.

The two pattern select buttons step through the rows and columns of the matrix to select a patterns. The column select button is located at the upper right corner of the matrix. Pressing this button steps the column selection in the matrix one column to the left. The row selection button is located at the upper left corner of the matrix. Pressing this button steps the row selection in the matrix one row down. As soon as either of these buttons is pressed, the LED in the Pattern Take button, located at the bottom left corner of the matrix, lights. This indicates that a pattern selection is in progress. When the desired pattern has been selected through the proper combination of row and column selection button depressions, pressing the Pattern Take button makes the pattern currently at the intersection of the row and column LEDs into the "current" or "active" pattern.

Note that some pattern is ALWAYS active. The currently active pattern is the pattern indicated by the column and row LEDs when the LED in the Pattern Take button is OFF. As soon as either of the pattern select buttons (row or column) is pressed, the LED in the Pattern Take button, located at the bottom left corner of the matrix, lights. The row and column indicators then no longer indicate the pattern that is truly active. Even if the pattern selection on the matrix is then returned to the original setting, the Pattern Take LED will remain on until the Pattern Take button is pressed.

Selection of some patterns may have an effect on other selections of effects and operating modes. Switching from a pattern that allows Joystick/Positioner control (i.e., a pattern that originates from or ends in the center of the field) to one that does not (i.e., a side-to-side or diagonal pattern) will cause the Joystick/Controller, and Spotlight mode as well, to be automatically turned off if previously on.
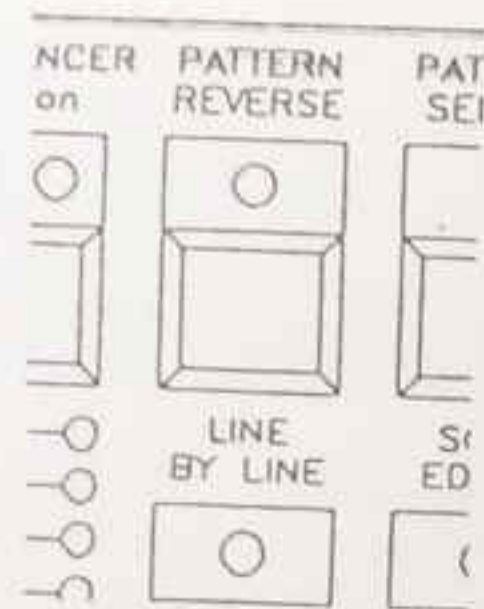
26

FIG. 34

PATTERN REVERSE - While in some sense this is another part of the pattern selection process (it in effect doubles the size of the pattern selection matrix), the Pattern Reverse button is different in that it may be switched on and off at any time without also having to press the Pattern Take button.

Pattern Reverse operates on the ACTIVE pattern, so if the pattern selection buttons have been operated but the Pattern Take button not yet pressed, the Pattern Reverse function will reverse the direction of the previously selected pattern, not the pattern currently indicated on the matrix.

Turning on the Pattern Reverse before pressing Pattern Take on a newly selected pattern will NOT cause the newly selected pattern to always be run in reverse when selected. Pattern Reverse is only in effect when it is on (when the LED is lit).

The pattern selection matrix display on the top panel indicates the "normal" direction of each pattern by a whitened "shading" in the area of the field that the pattern originates from. For example, the Circle pattern shows a whitened circle in the center of the field. This indicates that a Circle pattern wipe originates in the center of the field and works outward from there as the wipe progresses. If the Pattern Reverse button is engaged (in which case the button's LED is lit), the Circle pattern will originate from the outside edges of the field and progress toward the center. Similarly a left-to-right pattern will become a right-to-left pattern, a top-to-bottom pattern will become a bottom-to-top pattern, and so forth.

Pattern Reverse is meaningful only in Wipe mode, is not at all affected by in-sync versus non-sync operating modes or other options or effects such as Line-by-Line or use of the Joystick/Positioner.
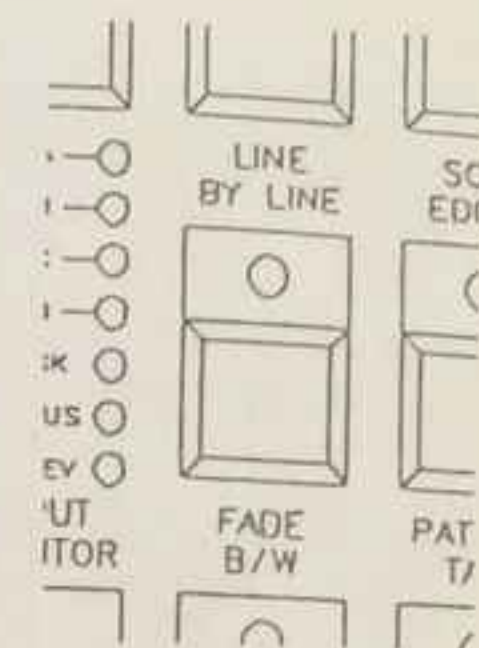
27

FIG.35

LINE-BY-LINE - Line-by-Line mode is used to create smooth wipes. As it is only usable in Wipe mode, attempts to turn it on while in Dissolve mode will be rejected (the Wipe button LED will blink for a few seconds to show that Wipe mode must be in effect), and switching to Dissolve mode from Wipe mode while Line-by-Line mode is in effect will cancel Line-by-Line mode. Line-by-Line mode also requires in-sync sources. If non-sync sources are being used, attempts to turn Line-by-Line on will be rejected (the In-Sync LED will blink for a few seconds to show that in-sync sources must be used).

Line-Line may not be turned on OR off while the Program Slider is out of position - after a non-sync wipe or dissolve, or any cut has been performed and the Program Slier has not yet been brought to the new "home" position, or at ANY time that the Program Slider is not all the way to either "home" position. Line-by-Line may NOT be engaged or disengage partway through a wipe. In any of these cases, BOTH of the Source Select button LEDs will blink. Line-by-Line mode is also not available while Spotlight mode is in effect (the Spotlight button LED blinks if this is attempted).

When Line-by-Line mode is in effect, the Program Slider does not directly control the progress of a wipe. While in Line-by-Line mode the Program Slider sets only the FINAL DESTINATION of the wipe. (The final destination may be a full wipe to the opposite bus, or it may not. There are no restrictions.) The actual progression of the wipe is automatic, and the speed of the progression is set by the front-panel Soft Edges/Memory Speed level control. The wipe is practically stopped when the Soft Edges control is set all the way counter-clockwise, and rather unreasonably fast when the control is set all the way clockwise.

Note that a smooth Line-by-Line wipe requires that the speed control be set before the Program Slider is moved to begin the wipe and not changed during the wipe, and that when the wipe is to take place the Program Slider be move as quickly as possible to the desired "destination" position. (Of course, this is easiest when a full bus-to-bus wipe is to be performed.)

Line-by-Line mode can also be used with the positioner to move patterns around when the program slider has a pattern visible on the screen.
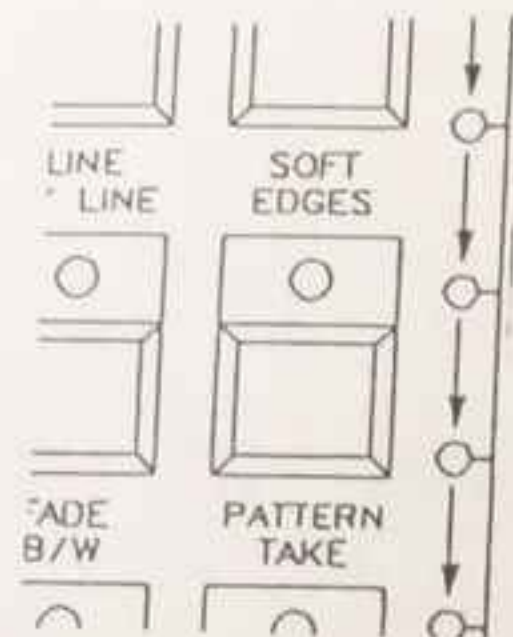
28

FIG. 36

SOFT EDGES - Soft Edges mode allows for a softening, or blurring, of the edges of all patterns for wipes and for the boundary of the circular "highlight" area in Spotlight mode. When the button is engaged (the LED is lit), the front-panel Soft Edges control determines the amount of softening of edges that takes place. When the button is off (the LED is off), Soft Edges mode is disabled and the setting of the front-panel control is irrelevant to this function. All edges will have maximum sharpness.

Soft Edges mode can be used for "dream sequence" effects and other special purposes. When Soft Edges mode is engaged, regardless of the setting of the front-panel control, Circle pattern effects will be reduced in size to keep the range of the pattern on screen including the "distortion" of the Soft Edges effect.

If a Circle pattern is visible when Soft Edges is turned on or off, the size of the pattern will change immediately. This is not a malfunction. If it is desired to add Soft Edges to a circle pattern that is to be already on-screen, Soft Edges mode should be turned on before the pattern is brought up but the front-panel "level" control moved to minimal effect, and the Soft Edges effect added "on-the-fly" by bringing up the front-panel "level" control to the desired degree of effect.
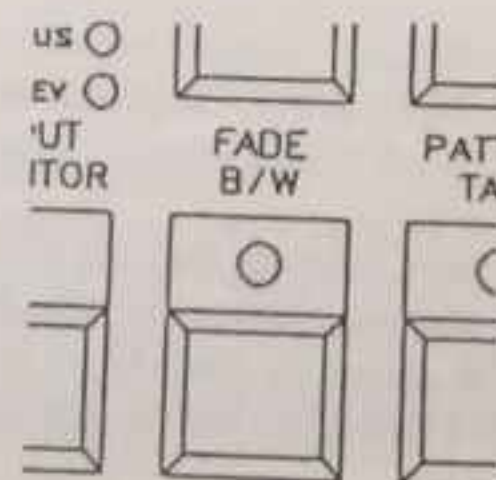

FIG. 37

29

FADE B/W -- Fade B/W mode, when asynchronous sources are selected, causes the usual asynchronous Cut, Dissolve or Wipe to go to a white screen rather than the usual, black-screen, operation. At intermediate transition to a solid black screen is normal for cuts, wipes and dissolves for non-sync sources. Engaging Fade B/W results in transition to a white screen rather than black during these operations.

Fade B/W mode may be engaged at any time except for when Spotlight mode is in effect. If used with in-sync sources, engaging Fade B/W will automatically cancel any other effects (Monochrome, Polar, Poster, etc.) currently in use. In addition, while Fade B/W is in effect, attempts to engage any other of these effects will be rejected. (Fade B/W is an exclusive mode of operation for the unit's video processing circuits and precludes use of any other of the "standard" effects for a bus.)

Fade B/W is engaged in "reverse" (black) mode - for in-sync sources ONLY - by pressing the control button AGAIN. This will result in black end effects for in-sync operations, as with the intermediate effects normally used for non-sync operations.

When Fade B/W button is pushed once, depending upon where the program slider bar is parked, it will be activated on the opposite bus. At that time, the LED source select button for that bus will go out until the Fade B/W button is pushed for the third time, deactivating this mode.
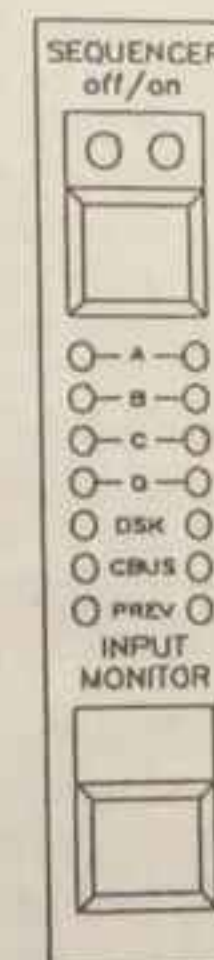
FIG. 38

INPUT MONITOR AND SEQUENCER - These two buttons together, and their associated LEDs, are used to control the multiplexed monitor system. This system allows for monitoring all of the units video inputs and preview output with a single monitor screen. A normal setup using individual screens would require eight separate monitors. With the input monitor system, two are enough (a separate monitor is always required for the final program output).

30

The monitor button is the most commonly used control in the input monitor system. This button selects which video input is sent to the single monitor screen. The row of green LEDs between the two input monitor control buttons indicates which video line is currently selected for display. The monitor button can be operated as desired in normal operation to select between the available displays.

The Sequencer button is used to select between normal operation of the Input Monitor system and the programming mode. In normal operation, the Monitor button is used as described previously to select which video display will appear on the monitor. In programming mode, any combination of the possible monitoring selections can be "locked out" from selection by the Monitor button. A selection that is "locked out" will be skipped during the sequential selection of video displays obtained by pressing the Monitor button. This allows for skipping unused or irrelevant inputs without multiple depressions of the Monitor button and a lot of looking at the panel to see what the current Input Monitor selection is and whether or not it is useful. The row of red LEDs between the two control buttons indicates which selections, if any, are "locked out" and consequently unavailable for selection via the Monitor button.

In normal operation, the right (green) LED in the Sequencer button is on. In this mode, the Monitor button selects the video display as describe previously. Programming mode is selected by pressing the Sequencer button. This turns on the left (red) LED in the Sequencer button, and the lockout status (red) LED row becomes the indicator of which selection is being programmed. The programming operation starts at the Input A selection. If Input A is currently "locked out" of selection, the red LED in the Sequencer button will be lit steadily. If Input A is currently available for selection, the red LED in the Sequencer button will blink. The "lock out" status for this selection may be switched between open and "locked out", as desired, by pressing the Sequencer button. The red LED will reflect the new status, by blinking or lighting steadily. When Input A (or each subsequent channel) has been verified and/or programmed as desired, succeeding channels are selected by pressing the Monitor button.

After the last Input Monitor display selection (Preview) has been verified and/or programmed as desired, the Input Monitor system returns to normal operation. The red LED in the Sequencer button goes off, the green LED comes back on, and normal selection of the display via the Monitor button resumes. When Input A (or each subsequent channel) has been verified and/or programmed as desired, succeeding channels are selected by pressing the Monitor button.

After the last Input Monitor display selection (Preview) has been verified and/or programmed as desired, the Input Monitor system returns to normal operation. The red LED in the Sequencer button goes off, the green LED comes back on, and normal selection of the display via the Monitor button resumes. The new "lock out" status will be displayed on the red LED row.

Note that the Input Monitor selection in effect at the time programming mode is selected will still be in effect when normal operation resumes EVEN IF the selected display was "locked out" during the programming operation. It is only during the later operations of the Monitor button that the newly "locked out" selection will be skipped. If ALL selections are "locked out", the active display will remain on whatever selection was in effect when the programming operation began, and since no other selection is "open" the active display cannot be changed until at least one selection is unlocked. If only one selection is open, and if another selection (one of the now

31

"locked out" ones) is currently active, the first operation of the Monitor button after programming is completed will switch to that one selection, and after that point the active display will again be unchangeable until at least one other selection is unlocked.
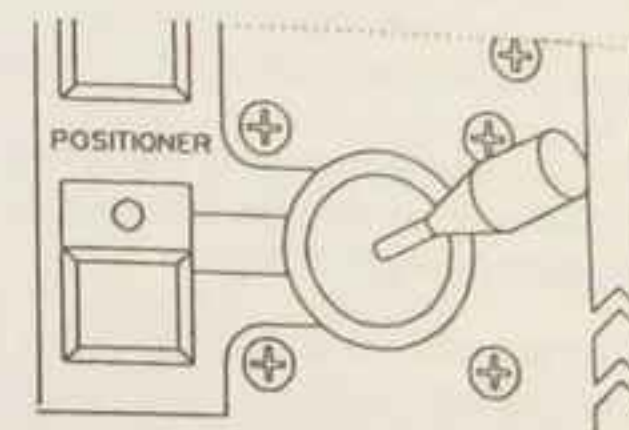

FIG. 39

JOYSTICK/POSITION CONTROL - The Joystick/Position Control is used to control the position of Wipes that originate from or end in the center of the field (especially the Circle pattern), and the highlighted field of the Spotlight effect. In Spotlight mode, the control is activated automatically and may not be disabled. For Wipes, the control is activated by pressing its control button. When the control is in effect (for either a Wipe or for Spotlight) the LED in the control button is lit.

The control is only available in Wipe mode, but if Dissolve mode is in effect when the control button is pressed then Wipe mode is selected automatically IF a qualified pattern is in effect, otherwise, all the Pattern Select LEDs will blink at once. This will happen if wipe mode was already in effect but a non-qualified pattern is selected as well.

The control is only available when in-sync sources are being used. This is pretty obvious since non-synced source require automatic wipes and dissolves that don't lend themselves to a positioned pattern. If non-synced sources are in effect, attempting to activate the positioned pattern. If non-synced sources are in effect, attempting to activate the Joystick/Positioner will cause the In-Sync LED to blink for a few seconds. (In-sync sources includes using the same input on both buses, such as in Spotlight mode, or if an input is being overlaid with itself plus an effect, as with the Monochrome or other similar effects.)
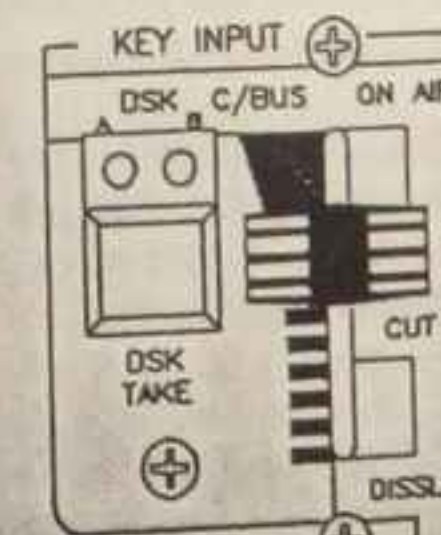

FIG. 40

32

DSK SLIDER - This slider has control over the Downstream Keyer output to both the Preview Outputs and the Program Outputs. The output of the DSK effect, controlled by the DSK Take button and the front-panel Keyer Slice control is dissolved onto the final Program Outputs with this control. (See instructions for the DSK Take button for additional information on the Downstream Keyer.) The slider operates in two modes, Cut and Dissolve.

1. In DSK Dissolve mode, the DSK output will dissolve onto the Preview and Program Outputs as the slider is brought up from about 1/4 to the top of its travel. Bring the slider back down dissolves back to the regular Preview and Program Outputs.

2. In DSK Cut mode, the DSK output will cut onto the Preview and Program Outputs as the slider is brought up to about the 1/3 point in its travel. If the slider is brought back down below the 1/4 point without first being brought all the way up, a cut back off will be performed. If the slider is brought all the way up, a dissolve back off will be performed when the slider is brought back down.

In normal operation, DSK Cut mode will be in effect if the slider is brought down to or slightly below the 1/4 point of its travel (to the Cut/Off-Air bar) but not all the way to the bottom (to the Dissolve bar). A Cut will be performed when the slider is next brought up. DSK Dissolve mode will be in effect if the slider is brought all the way down (to the Dissolve bar). A Dissolve will be performed when the slider is next brought up.

DSK TAKE - This button is used to turn on or off the Downstream Keyer function, and to reverse its operation The button contains two LEDs. The button and its LEDs work in the following manner:

When the button is first pressed (i.e., the DSK function was previously OFF), DSK is turned on in "normal" mode. The first (green) LED in the button lights.

When the DSK take button is pressed a second time (i.e., the DSK function was previously on and in "normal" mode), DSK operation is reversed. Both LEDs (red and green) in the button light.

When pressed a third time (i.e., the DSK function was previously on and in "reverse" mode), the DSK function is turned off. Both LED's in the button go off.

The DSK function is, to a large extent, like an additional Super effect which takes place right at the final output, even after the Preview/Live function. The effect operates using two additional inputs which work only for the DSK function. Theory and principles of operation follow the same lines as in the instructions for the regular Super mode.

The "effects threshold" for the DSK function is controlled by the front-panel Keyer Slice control. This control has a direct effect on the DSK effect. The Downstream Keyer keys video from the separate C Bus input onto the Program Outputs based on luminance levels from the separate DSK video input. Whether the buttoning is done on bright or dark areas is determined by whether the

33

DSK mode is normal or reversed, and the luminance level at which buttoning takes place is determined by the front-panel Keyer Slice control.

The result of the Downstream Keyer function, when active, appears immediately on the Preview Outputs. To bring the effect onto the Program Outputs requires operation of the DSK Slider.

By using the #2 colorizer output from the Colorizer (shown in FIG. 23 page 16) in to the C Bus input (shown in FIG. 21 on page 15) and using a key camera that is genlocked on a character generator, you can colorize your characters for titling.

With DSK Slider in Dissolve position, push the DSK take button until just the green LED is lit. Now, by watching the preview monitor, you can set up your titling and view it before bringing it on air - by pushing the DSK Slider to on-air.
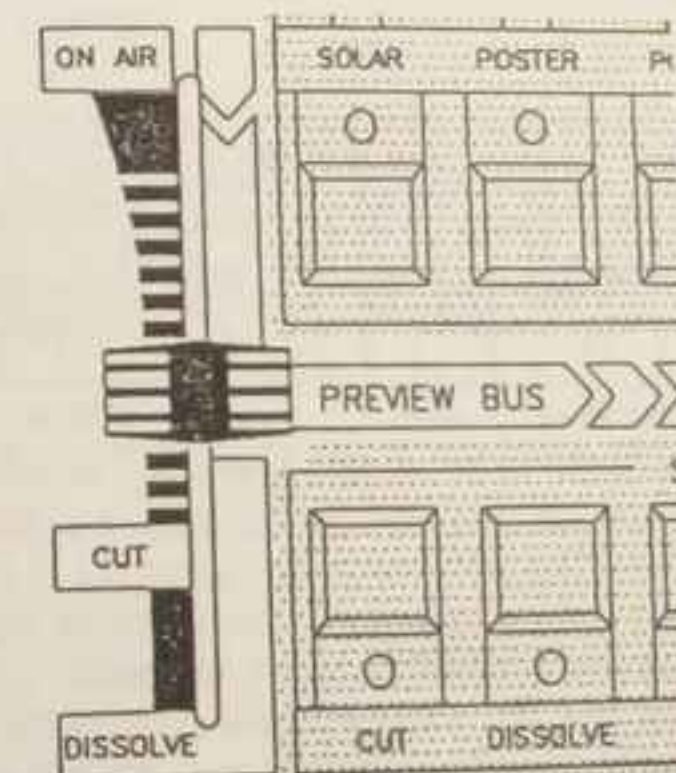
FIG. 41

PREVIEW SLIDER - This slider has control over the Program Output's tracking of the effects being generated within the unit. The Preview Outputs always follow the effects being generated. The Program Outputs follow ONLY when the Preview Slider is up. This allows for "previewing" effects and observing their consequences on the Preview bus before having them take effect on the Program Outputs.

When the Preview Slider is down, Program Outputs remain locked to the Program bus that is in effect when the slider is lowered. From this time until the slider is raised again, Program Output is locked. The slider operates in two modes, Cut and Dissolve.

1. In Preview Dissolve mode, the Program Outputs will dissolve to the new Preview bus signal (if there is any difference) as the slider is brought up from about 1/4 to the top of its travel.

34

When the slider reaches the top of travel, Program Output again tracks the same bus selection as the Preview outputs. At any time before the top of travel, bringing the slider back down will dissolve back to the preview default bus. Once the slider has been brought up, the Program Output will track bus selections until the Preview Slider is again brought down into the "Off Air" range.

2. In Preview Cut mode, the Program Outputs will cut to the new preview bus signal (if there is any difference) as the slider is brought up to about the 1/3 point in its travel. At this point the Program Outputs will begin tracking the same bus selection as the Preview outputs, even if the slider is not brought all the way up, and will continue to do so until the Preview Slider is again brought down into the "Off Air" range. In normal operation, Preview Cut mode will be in effect if the Preview Slider is brought down to or slightly below the 1/4 point of its travel (to the Cut/Off-Air bar) but not all the way to the bottom (to the Dissolve bar). A Cut will be performed when the slider is next brought up. Preview Dissolve mode will be in effect if the slider is brought all the way down (to the Dissolve bar). A Dissolve will be performed when the slider is next brought up.
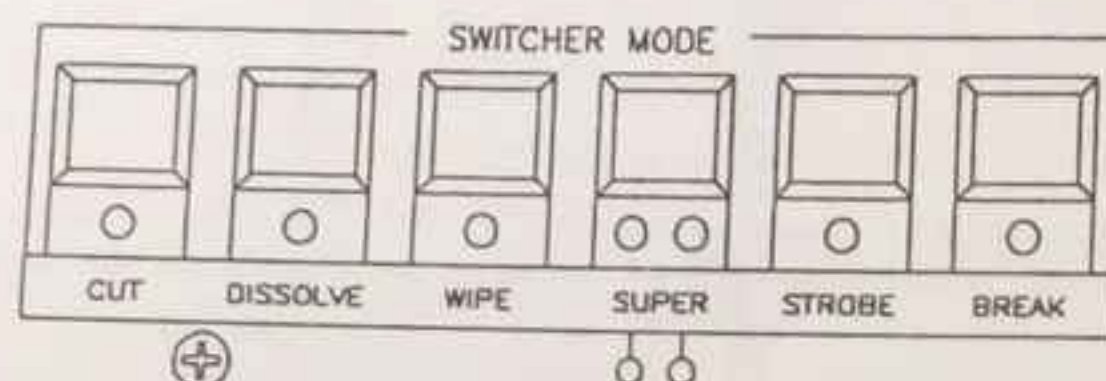

SWITCHER MODE

CUT   DISSOLVE   WIPE   SUPER   STROBE   BREAK

FIG. 42

WIPE/DISSOLVE MODE - When the unit is first activated, Dissolve mode is in effect. This mode means that Dissolves between the two buses (and thereby their selected inputs) will take place as the Program Slider is moved back and forth between its two ends of travel. If in-sync sources are selected (indicated by the In-Sync LED being on), the progress and speed of the dissolves are under direct control of the Program Slider. The progress of the dissolve is proportional to the position of the Slider between its two ends of travel, land in fact may be taken partway, reversed, canceled, etc. as desired. The speed is controlled by the speed with which the control is moved. As the Slider is moved from one extreme to the other, the "active" bus as indicated by one of the Source Select button LEDs being lit will alternate.

When non-synced sources are selected, a dissolve once activated by the Program Slider being moved from its "home" position is automatically completed and the Slider must be brought to the "completed" position to "finish" the dissolve. This condition is indicated by blinking of the LED in the Source Select button for the "final" bus. When the Slider is moved as necessary, blinking stops and the LED is on steadily.

Dissolve mode is indicated by the LED in the Dissolve button being lit, and can be selected by pressing the Dissolve button. By starting with the Slider at one end and pushing the Dissolve Button and moving the Slider Bar you will be able to layer a picture on top of one another. When sync. timing is not present, and Slider Bar is moved, it will take over fade to black and then the other source will appear.

Wipe mode is selected by pressing the Wipe button, and is indicated by the LED in the Wipe button being lit. This will automatically activate the pattern generator. Wipe mode means that Wipes between the two buses (and thereby their selected inputs) will take place as the Program Slider is moved back and forth between its two ends of travel. If in-sync sources are selected (indicated by the In-Sync LED being on), the progress and speed of the wipes are under direct control of the Program Slider. The progress of the wipe is proportional to the position of the Slider between its two ends of travel, and in fact may be taken partway, reversed, canceled, etc. as desired. The speed is controlled by the speed which the control is moved. As the Slider is moved from one extreme to the other, the "active" bus as indicated by one of the Source Select button LEDs being lit will alternate.

When non-synced sources are selected, a wipe once activated by the Program Slider being moved from its "home" position is automatically completed and the Slider must then be brought to the "completed" position to "finish" the wipe. This condition is indicated by blinking of the LED in the Source Select button for the "final" bus. When the Slider is moved as necessary, blinking stops and the LED is on steadily.

CUT - A cut may be performed with the unit in either Wipe or Dissolve mode. When the Cut button is pressed, the effect is to perform an immediate cut from the currently active bus (the bus whose Source Select LED is lit) to the other bus. The LED in the Cut button lights, and remains blinking until the Program Slider is brought to the new bus position, as indicated by a flashing Source Select button LED. When the Program Slider is moved as required, the Cut button LED goes out and the Source Select LED stops blinking and becomes steadily on. Until this is done, no other action involving the Program Slider will be recognized unless a return-Cut (or Strobe Cut) back to the previous bus is performed. This may be done without moving the Program Slider. (If the Slider has beeneen moved part of the way, it must be moved back after a returning operation.)

In operational terms, there is no difference between a Cut performed on in-sync versus non-sync sources. The actual effect of a non-sync Cut is a cut to black and the to the other bus, but this does not affect the way it is performed from the user's point of view. Use of controls is identical.

STROBE - This control allows you to use combinations of switches to perform different effects. Strobe, when pushed by itself does nothing, it has to be used with the Cut button or one of the effects buttons such as Solar, Poster, Polar, Mono or Negative. The Strobe button by itself has no function. It is pressed and held while the effect to be "strobed" is selected by pressing the desired effect or function button, and then both buttons are released.

Strobe allows you to switch inputs or effects starting off slow and progressing until it returns back to the bus you started with. Using the Strobe by pushing both buttons at the same time will give you the effect and will override what was previously present. After the effect is completed it will go back to the previous effect.

SUPER MODE - Super mode, like Spotlight mode, is a unique special effect. Unlike Spotlight mode, Super mode does operate using both of the program buses (usually with different program source material selected for each). Because of this, Super mode requires in-sync sources. The Super effect produces a kind of video overlay where video information from one bus is "superimposed" on the other (thus the name "Super"). The actual area of overlay is controlled by a selected Wipe pattern and adjusting its size/coverage with the Program Slider, up to "full-on" where the Program Slider is brought all the way to the selected bus, at which point the Super effect will be in full control.

When Super mode is first activated (by pressing the Super button once), it is in normal mode, and only the green LED in the Super button will be on. In "normal" mode, the Super effect buttons video from the NON-selected bus onto the SELECTED bus, based on bright areas in the program on the SELECTED bus, and the composite result is the output.

Once Super mode has been activated, pressing the Super button again will cause the effect to be REVERSED. In REVERSED mode, the red LED in the Super button will also be on. When Super mode is REVERSED, the effect buttons video based on DARK areas in the program on the SELECTED bus, and the composite result is the output.

Super mode is de-activated by pressing the Super button again from REVERSED mode. If the effect is being used in "normal" mode, it is necessary to press the Super button TWICE to turn the effect OFF.

The operation of the Super effect is controlled by the front-panel Effects Threshold control (see special instructions for use of the Effects Threshold control). The Effects Threshold control regulates the level of brightness (or darkness, in Reversed mode) at which the video from the other NON-selected bus is keyed in to the SELECTED bus.

AUDIO BREAKAWAY - Audio Breakaway is used in cases where two different video sources are to be alternated (such as dissolves or wipes) but the audio signal is to come from only one of them. Audio Breakaway is not at all affected by in-sync versus non-sync operating modes or other options or effects, and has no effect on other options or effects. Audio Breakaway is automatically invoked during Strobe Cut and Strobe Bus effects to prevent the audio outputs from "flickering" along with the video. In all but the Strobe Bus to the SAME BUS effect, approximately halfway through the effect, if Audio Breakaway was originally off, it will be released for one cycle to process the actual audio switch to the opposite bus. If Audio Breakaway mode was originally on when the Strobe began, no audio switching will take place. At the end of the Strobe effect, Audio Breakaway mode will revert to the mode in effect before the Strobe.
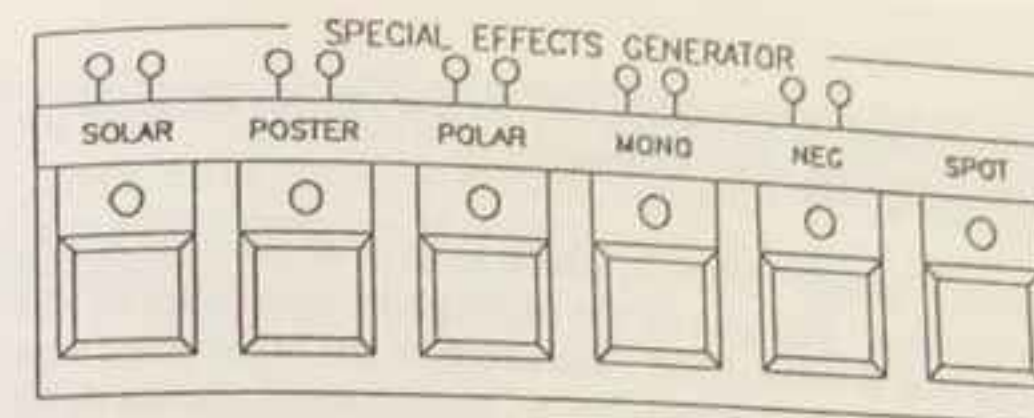
FIG. 43

The Special Effects Generator provides the capability to select on either the A or B Bus these effects: Solarization (SOLAR), Posterization (POSTER), Polarization (POLAR), Monochrome (MONO), Negative (NEG), or Spotlight (SPOT). These functions are selected by activating the corresponding switches.

These special effects can be modified with the controls on the bottom front of the Adventurer. The Spotlight edges can be adjusted from hard to soft with the Edges/Line Memory Speed Control. The circle shape can be modified into a cameo ellipse with the Circle Cameo Control and the contrast between the spotlight and the background can be modified from dark to light by the Background Contrast Control.

The Polar/Luma Control modifies the effect of Solarization and Polarization while the Effects Threshold Control comes into play with Posterization or Superimposition Switcher Mode.

SPOTLIGHT MODE - Spotlight mode is a unique effect that has some special requirements. it does not require in-sync sources, because it only operates on one source anyway. When engaged, the source selected for the currently "active" bus (as indicated by the LED lit in one of the Source Select buttons) will become the source selected for the opposite bus as well, if it was different before. In such a case, the "two" sources, being the same source, will always be in-sync. Also as a part of this condition where Spotlight mode is a "total" effect, it is not selectable independently for the A and B buses. There are therefore no separate bus LEDs for Spotlight mode. It is either on or off. When the spotlight mode is started, it will change to the opposite bus depending on which bus the slider is parked at or is the closest to.

Spotlight mode requires that a pattern be selected that allows for use of the Joystick/Positioner (i.e., a pattern that originates at or ends in the center of the field). If such a pattern is not active, all the Pattern Select (row and column) LEDs will blink for a few seconds, and Spotlight mode will engage with the Circle pattern selected automatically. Once this has occurred, the pattern may be changed as desired. If an invalid pattern is selected manually at this point, Spotlight mode will be turned off. Before going into another mode, the Spotlight has to be turned off and the sources selected again.

Spotlight mode automatically turns off any other effects which are active for either bus (Monochrome, Polar, Poster, etc.), and turns on the Joystick/Positioner (if it was not on already).

When Spotlight mode is turned off, all effects will remain off, but the Joystick/Positioner will be left on if it was on before Spotlight mode was engaged.

Spotlight mode produces a "cameo" effect in which an area of the field is highlighted by being brighter than its surroundings. The size of the highlighted area is set by the Program Slider, which in Spotlight mode has no other effect. The shape of the highlighted area is determined by the active pattern and also by the front-panel Circle Cameo control, shown in FIG. 48 on page 44, if a Circle pattern is in effect. The degree of highlighting is set by raising or lowering the brightness of the surroundings, by adjusting the front-panel Background Contrast control, shown in FIG. 48 on page 44.

MONOCHROME MODE - NEGATIVE MODE - POLAR MODE - POSTER MODE

SOLAR MODE - All of these effects are available for either or both of the buses, A and/or B. However, only one effect at a time may be active for each bus. Switching on one effect for a bus will turn off any other effect that was previously selected for that bus. Each effect's button is accompanied by two small LEDs indicating which bus(es) the effect is active for, and another LED in the button to indicate that the effect is active for the bus OPPOSITE the "active" bus indicated by the LED lit in one of the Source Select buttons.

These effects may only be switched for the bus OPPOSITE the current "active" bus indicated by the LED lit in one of the Source Select buttons (i.e., the bus whose Source Select button LED is OFF). This is to force the effect to be set up on the bus that will be dissolved, wiped, or cut to.

MONO (monochrome) mode results in a black & white picture on the selected bus, which may be overlaid with the other bus (which may have some other effect active) in a Wipe pattern or a Dissolve. No adjustment of this effect is possible, it is either on or off.

NEG (negative) mode results in a reversed-video picture on the selected bus, which may be overlaid with the other bus (which may have some other effect active) in a Wipe pattern or a Dissolve. No adjustment of this effect is possible, it is either on or off.

POLAR (polarization) mode results in a chroma-shifted video picture on the selected bus, which may be overlaid with the other bus (which may have some other effect active) in a Wipe pattern or a Dissolve. The operation of the Polar effect is controlled by the front-panel Polar Luma Control, shown in FIG. 48 on page 44. (Note that there is only a single Polar Luma control for BOTH buses.) The Polar effect operates by removing the luminance from the original video signal and replacing it with a fixed level of luminance which is set by the front-panel Polar Luma control.

POSTER mode results in a reversed-video pictures on the selected bus, which may be overlaid with the other bus (which may have some other effect active) in a Wipe pattern or a Dissolve. The operation of the Poster effect is controlled by the front-panel Effects Threshold control shown in FIG. 48 on page 44.

39

SOLAR mode results in a chroma-shifted video picture on the selected bus, which may be overlaid with the other bus (which may have some other effect active) in a Wipe pattern or a Dissolve. The operation of the Solar effect is controlled by the front-panel Effects Threshold control. The Solar effect operates by inverting any luminance that exceeds a level set by the Effects Threshold control.
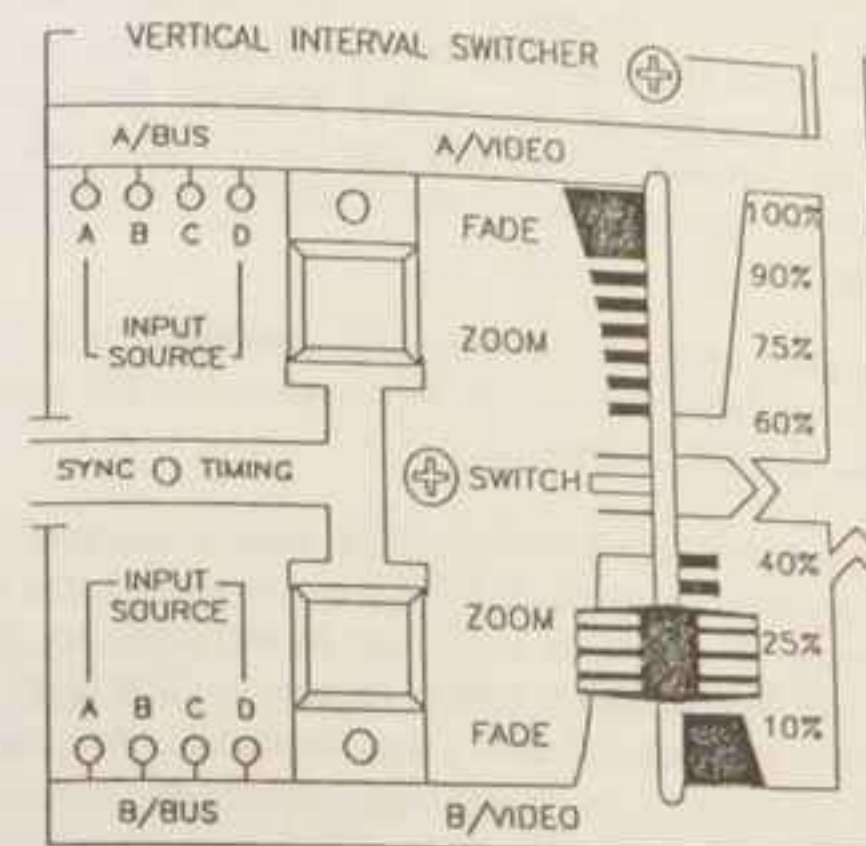

FIG. 44

BUS SOURCE SELECTION - When the Adventurer is first turned on, it will be in Asynchronous mode. By putting the slider in B/Video position and pushing the source selec button through A, B, C and D for A/Video, the Adventurer will come out of Asynchronous mode and allow you to change sources. The sources for the two main buses, A and B, are each selected from among four possible input channels by using the Source Select buttons, and the actual source selected for each bus is indicated by the small LEDs next to the Source Select buttons. The A input is always allowed as a source for both buses, regardless of whether or not it is actually active (i.e., carries a video signal), and is in fact the initial source selection for each bus when the unit is first activated. The input selection for either bus is changed by pressing the Source Select button for that bus. Note that the source for a bus may only be switched when the OPPOSITE bus is in effect on the Preview and Program Outputs. In general, this is indicated by the LEDs in the Source Select buttons. Only the source for the bus whose Source Select Key LED is OFF may be switched. If one bus is active on the Preview Outputs as determined by the Program Slider and as indicated by that bus' Source Select button LED, and the Program output is locked to the other bus by the Preview Slider being down, then NEITHER bus source may be changed. (There is no direct indication of this condition from the Source Select button LEDs or

40

anything else. This condition must be determined from the position of the Program Slider and the Preview Slider relative to the one Source Select button LED which WAS lit at the time that the Preview Slider was lowered.)

An invalid attempt to change an input source is signaled by the LED in the attempted Source Select button blinking for a few seconds. This is usually caused by attempting to switch the input for the bus that is currently active (as determined by the LED in the button being on), or by the bus being "locked" to the Program Outputs by the Preview Slider being down. (The bus that the input switch is being attempted on was the "active" bus when the Preview Slider was lowered, and the input source for that bus may not be changed even if it is not the "active" bus for previewing effects.) When the light is blinking, move the slider to that video source position until the light stops blinking.

One or both of the LEDs in the Source Select buttons will also blink in cases where the Program Slider is considered to be in the "wrong" position. For details, see the sections on the Program Slider, Wipe/Dissolve Mode, Cut, and Strobe Cut.

Any input (other than A) that does not carry active video will be skipped by the Source Select buttons. If input A is the only active input (or even if it is not active), the selection will remain on A when the button is pressed. If input C is active, the source selection will alternate between A and C with each press of the Source Select button (again, even if input A is not active). If input B is also active, the button will step A to B to C and back to A. And so forth.
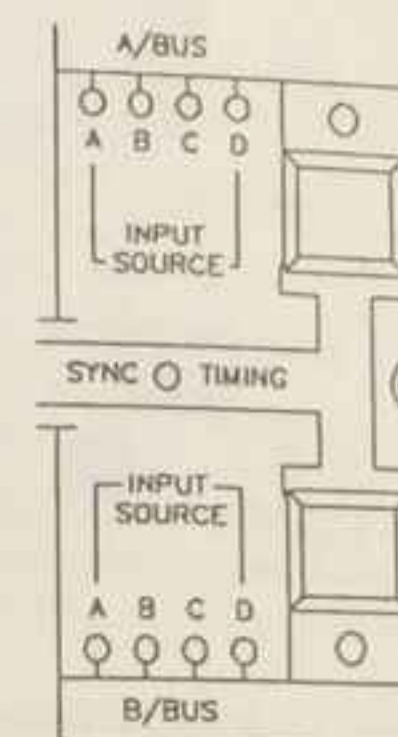
FIG. 45

After all hook-ups are completed, select the inputs, by using the Input Selector Switch on A Bus and B Bus. In order to switch inputs on these buses, the Slider Bar must be parked in the opposite position of the bus that you are trying to switch. If the LED indicator lights in the Bus Selector Switches "blink", the slider bar is in the wrong position. Park the Slider Bar in the B bus position and select input A on A bus, then moving the Slider Bar to the A bus position, select input B on B bus.

After you have selected the inputs on your A bus and B bus, you can mix those selected sources by moving the slider bar. If the Sync timing LED is not lit, refer to camera hook-up and adjustment on page 9.

When the Adventurer is first powered on, the switcher automatically selects the Dissolve mode. You will notice the green LED in the Dissolve Select Switch is illuminated. The Switcher Mode Selectors allow the selection of how the input sources are switched or mixed.

DISSOLVE - By pushing the dissolve selector switch and moving the Slider Bar it allows the layering of both video images on top of one another.

WIPE - When the Wipe button is pushed, it activates the Pattern Generator. This allows the selection of any one of the patterns you have chosen. To select a pattern, there are two rows of LED's - one vertical row and one horizontal. By pressing the Pattern Select buttons, you can move these LED's. By lining up the lit LEDs, you can select a pattern. Once the correct pattern is selected, depress Pattern Take button, this will activate the pattern selected.
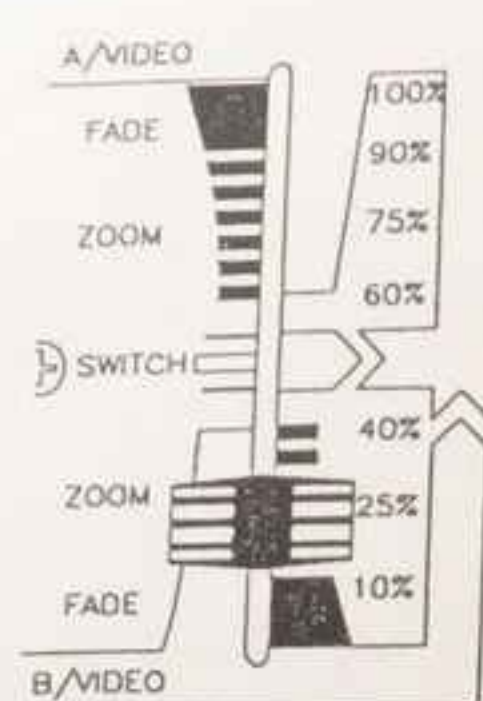
FIG. 46

By pushing the cut button, you achieve an instantaneous cut from one bus to another. If the Slider Bar is in A Bus position and the Cut Button is pushed, the Bus is switched from A bus to B Bus, but the Slider Bar is still in the A bus position. At this point, the Cut LED is still lit.. The B Bus green input source LED is blinking, which indicates that is the active bus. By moving the Slider Bar to the B Bus, this will then cause both the LED in the Cut button and the B Bus to go out.
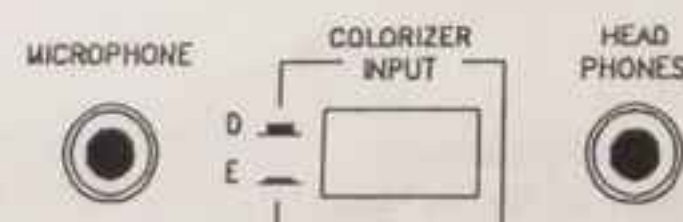

FIG. 47

Microphone Input - Allows the use of a microphone to mix additional audio, such as narration with the Audio sources. This is controlled with the front panel Microphone Mix control shown in FIG. 26 on page 19.

Colorizer Input - This selects which rear panel colorizer input, shown in FIG. 23 on page 16, is active. The input you select is processed with the front panel controls shown in FIG. 31 on page 23.

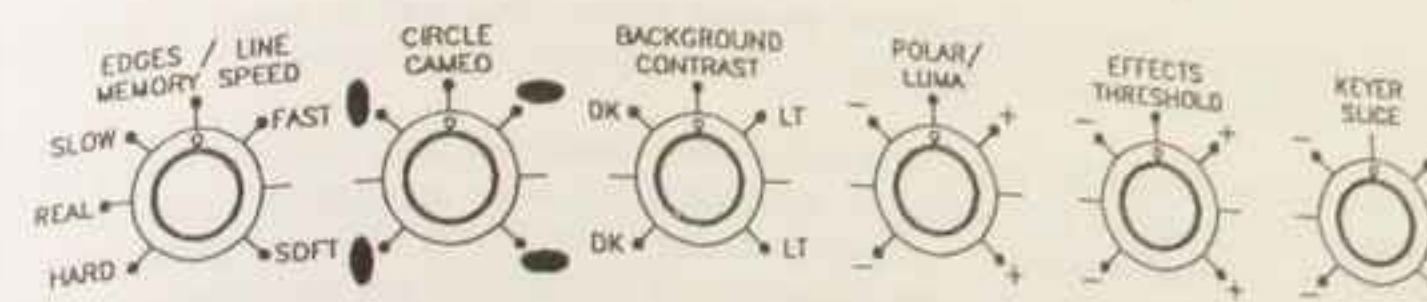**Headphone Output** - Allows you to monitor the master audio track.

43

FIG. 48

SOFT EDGES/MEMORY SPEED - When Soft Edges mode is in effect (activated by the Soft Edges key - the LED will be lit), this control sets the degree of softness that will be used. When turned all the way counter-clockwise, edges will be totally sharp. At the full-clockwise position, maximum softening of edges will be in effect. When the Soft Edges key is off (LED is not lit), this control has no effect on the Soft Edges level, and all edges will have maximum sharpness.

When Line-by-Line mode is in effect, this control sets the speed of the wipes that are performed. At maximum counter-clockwise, wipes are almost completely stopped. At full-clockwise, wipes are rather unreasonably fast.

In Demo and Program (Edit Memory) modes, this control sets the relative "playback" speed of the Demo or Program steps. At the middle setting, the steps will be "played back" at normal speed - in Program mode, this will be the same speed at which the steps were originally programmed. When adjusted counter-clockwise, the steps will be taken at a slower pace. When adjusted clockwise, the steps will be taken at a faster pace.

CIRCLE CAMEO - For wipes or other effects (i.e. Spotlight) when a Circle pattern is used, this control sets the amount of vertical or horizontal compression of the pattern. At the middle position, the circle pattern in normal. When turned counter-clockwise from the middle position, the circle is "compressed" horizontally and elongated vertically. When turned clockwise from the middle position, the circle is "compressed" vertically and elongated horizontally.

BACKGROUND CONTRAST - When in Spotlight mode, this control sets the brightness of the background surrounding the highlighted area. The background areas are ALWAYS somewhat darker than the selected highlighted area, but with this control the background area can be anywhere from slightly darker than the highlighted area all the way to completely black.

POLAR LUMA - For the Polar effect, this control sets the level of the luminance put onto the output video signal. The signal's original luminance is removed and replaced with a fixed signal whose level is set by this control. This control works for the Polar effect on both A and B buses.

EFFECTS THRESHOLD - For the Solar effect, this control sets the threshold at which luminance levels will be inverted. For the Super effect, this control sets the luminance level at which video from the NON-selected bus is keyed into the video from the SELECTED bus.

44

Depending on whether the effect is in normal or reversed mode, video will be keyed in when the luminance is above (normal) or below (reversed) the level specified by the control.

In all cases, the Effects Threshold control sets independent levels for both A and B buses. The Effects Threshold control "locks" on a setting for the current bus when the Program Fader (or Cut key) is in transit to, or all the way over to, the opposite bus. The Effects Threshold control sets the value for Bus A effects when the Program Slider is at, or in transit to, the A bus position. The setting of the Effects Threshold for bus A is licked in when the Program Slider is again moved away from the A bus position. The Effects Threshold control sets the threshold for bus B effects when the Program Slider is at, or in transit to, the B bus position. The setting of the Effects Threshold for bus B is locked in when the Program Slider is again moved away from the B Bus position.
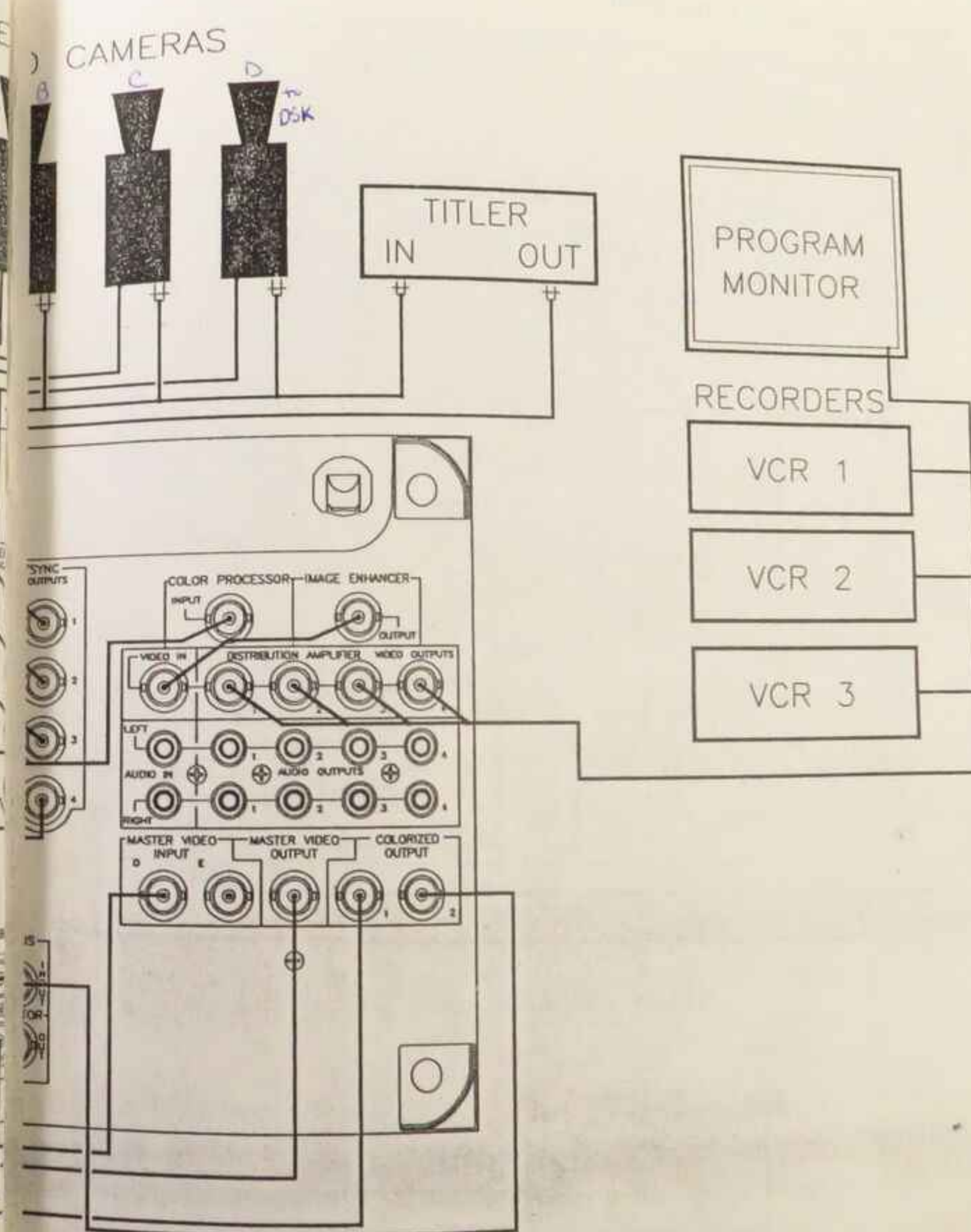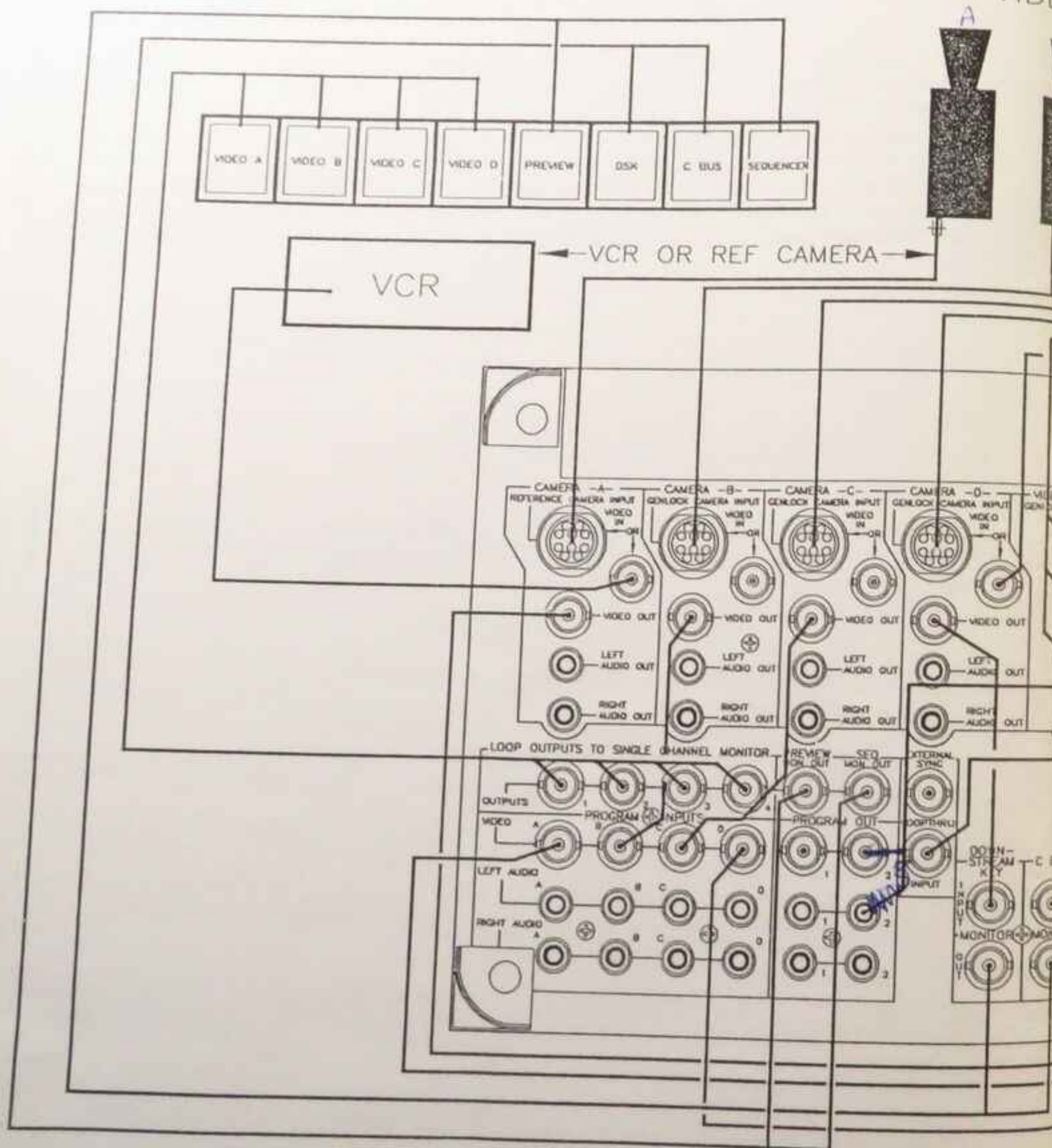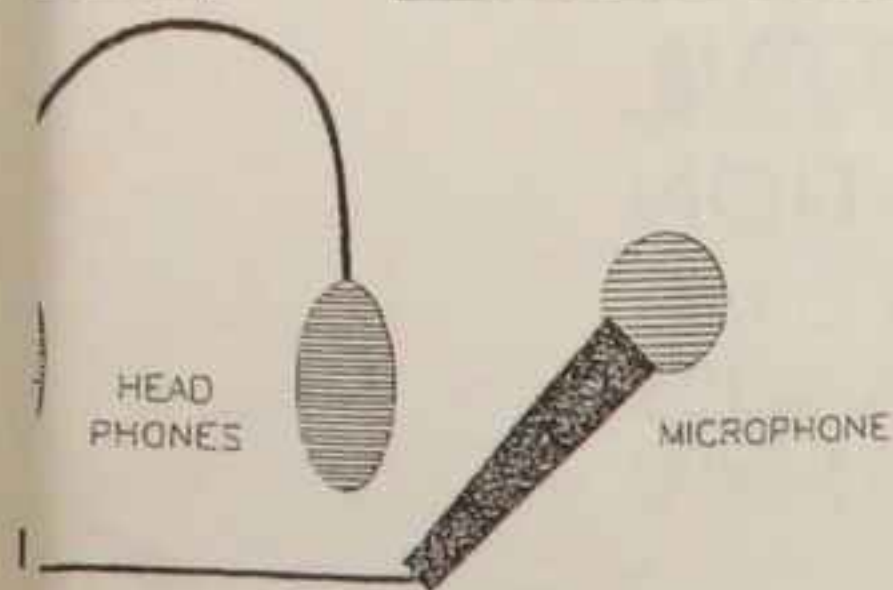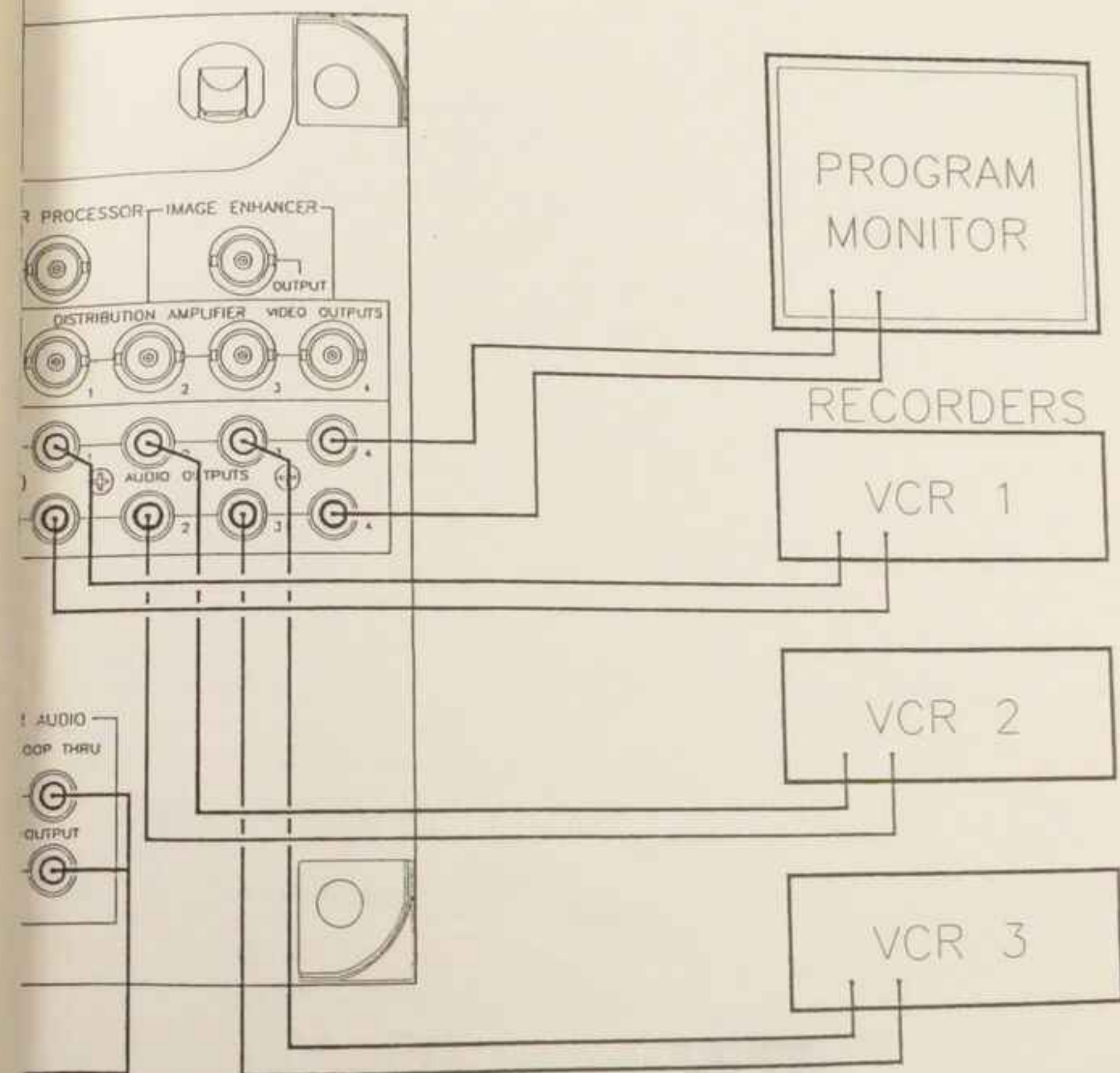
FIG. 49 - SUGGESTED VIDEO HOOK-UP'S

FIG. 50 - SUGGESTED AUDIO HOOK-UP'S

CAMERA —A—
REFERENCE CAMERA INPUT

CAMERA —B—
GENLOCK CAMERA INPUT

CAMERA —C—
GENLOCK CAMERA INPUT

CAMERA —D—
GENLOCK CAMERA INPUT

VIDEO/SYNC
GENLOCK OUTPUTS

VIDEO IN —OR—

VIDEO OUT   VIDEO OUT   VIDEO OUT   VIDEO OUT

LEFT AUDIO OUT   LEFT AUDIO OUT   LEFT AUDIO OUT   LEFT AUDIO OUT

RIGHT AUDIO OUT   RIGHT AUDIO OUT   RIGHT AUDIO OUT   RIGHT AUDIO OUT

COLOR INPUT

VIDEO IN

LEFT

AUDIO IN

RIGHT

1
2
3
4

LOOP OUTPUTS TO SINGLE CHANNEL MONITOR   PREVIEW   SEQ.   EXTERNAL SYNC

OUTPUTS   PROGRAM   INPUTS   PROGRAM OUT   LOOPTHRU

VIDEO   A   B   C   D   1   2

LEFT AUDIO   A   C

RIGHT AUDIO   A   C   1   2

DOWN-STREAM KEY   C BUS

INPUT

INPUT   INPUT

MONITOR   MONITOR

OUT   OUT

COLORIZER
LEFT
INPUT
RIGHT

PROCESSOR   IMAGE ENHANCER
OUTPUT

DISTRIBUTION AMPLIFIER VIDEO OUTPUTS
1   2   3   4

AUDIO OUTPUTS
1   2   3   4

AUDIO
LOOP THRU

OUTPUT

PROGRAM MONITOR

RECORDERS

VCR 1

VCR 2

VCR 3

FRONT PANEL

MICROPHONE   COLORIZER INPUT   HEAD PHONES

HEAD PHONES   MICROPHONE

49

50